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DOJ MOVE LIMITS EFFECT ON USERS

No Microsoft split-up; other remedies likely

BY PATRICK THIBODEAU
WASHINGTON

The government's decision last week to drop its attempt to break up Microsoft Corp. will likely limit the long-running antitrust case's ultimate impact on corporate users, according to IT managers and analysts.

Without a breakup on the table, the U.S. Department of Justice's remedy menu shrinks to a set of restrictions that could be imposed on the software vendor's business practices. Such restrictions would likely be aimed at improving

Microsoft, page 61

AT A GLANCE

Breakup Alternatives

The DOJ's suggested remedies to impose on Microsoft will now be modeled on a series of business-conduct restrictions proposed by Judge Thomas Penfield Jackson, including the following:

- **A ban on any "adverse actions"** against PC makers for supporting competing software products
- **Uniform Windows licensing** and pricing terms for hardware vendors
- **Flexibility allowed in configuring Windows,** including the desktop layout and boot up sequence
- **Release of Windows APIs** to other developers at the same time that Microsoft's own engineers receive them
- **Establishment of an internal corporate** antitrust compliance officer and committee by Microsoft

PEOPLESOFT PROJECT ENDS IN COURT

User says ERP vendor botched software work

BY MARC L. SONGINI

Connecticut General Life Insurance Co. is suing PeopleSoft Inc. over the aborted installation of a finance system, claiming that it was forced to develop a homegrown application after the vendor failed to deliver customized software that was promised as part of a 1999 contract.

LEGALWOES

The 13-count suit, filed late last month in U.S. District Court in San Francisco, also claims that Pleasanton, Calif.-based PeopleSoft ballooned its tab for the project from the original figure of $5.16 million to $11.7 million and indicated that the final cost could go even higher.

Connecticut General, a subsidiary of CIGNA Corp. in Philadelphia, wants PeopleSoft to refund the $5.16 million that was paid upfront and was supposed to include five years of technical

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MERGERS & ACQUISITIONS

Desperation Deal

HP, Compaq users shocked but say it's too soon to assess planned union of struggling vendors

Product commitments, service top concerns

BY MARK HALL

David Stavetski, midrange systems manager at Saks Inc., was dropping his kids off for the first day of school when another parent told him about Hewlett-Packard Co.'s plan to acquire Compaq Computer Corp.

"I was stunned," he said. "This was monumental."

Users nationwide were similarly shocked by last week's announcement of the multibillion-dollar deal, one that's aimed at combining two computer giants into a behemoth with $87 billion in revenue, while creating the world's largest

HP's Carly Fiorina and Compaq's Mike Capellas

PC maker and the dominant company in the server market. (For more on the deal's value, see FAQ on page 6.)

The shock soon gave way to skepticism. In an exclusive *Computerworld* survey of 129 senior IT leaders at midsize and large companies, 59% of

User Reaction, page 6

Benefits exist but won't appear soon

BY JAIKUMAR VIJAYAN

Enterprise users shouldn't expect any near-term technology or price and performance gains from Hewlett-Packard Co.'s plan to acquire Compaq Computer Corp., announced last week.

The benefits are going to be far more evolutionary in nature and will depend entirely on HP's ability to cherry-pick and integrate Compaq's rich but overlapping technology portfolio, users and analysts said.

"Certainly, there are some very interesting possibilities resulting from the

Benefits, page 7

Is this a merger of desperation?

How top IT execs view the HP/Compaq deal:

59%	Yes
29%	No
12%	Don't know

SOURCE: A SURVEY OF 129 COMPUTERWORLD EXECUTIVE SUITE MEMBERS

Quick Link: For additional resources and links related to the HP/Compaq deal, please visit our Web site: www.computerworld.com/q/123184

"I'm hoping HP recognizes that Compaq's quality and customer service are superior."

J. DOUGLAS DALRYMPLE
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- **7 HOW THE COMPANIES' PRODUCT LINES** compare and how they stack up against IBM's.
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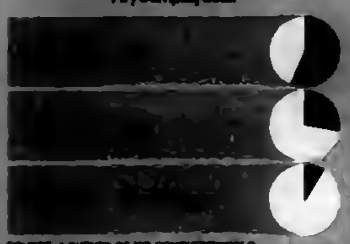

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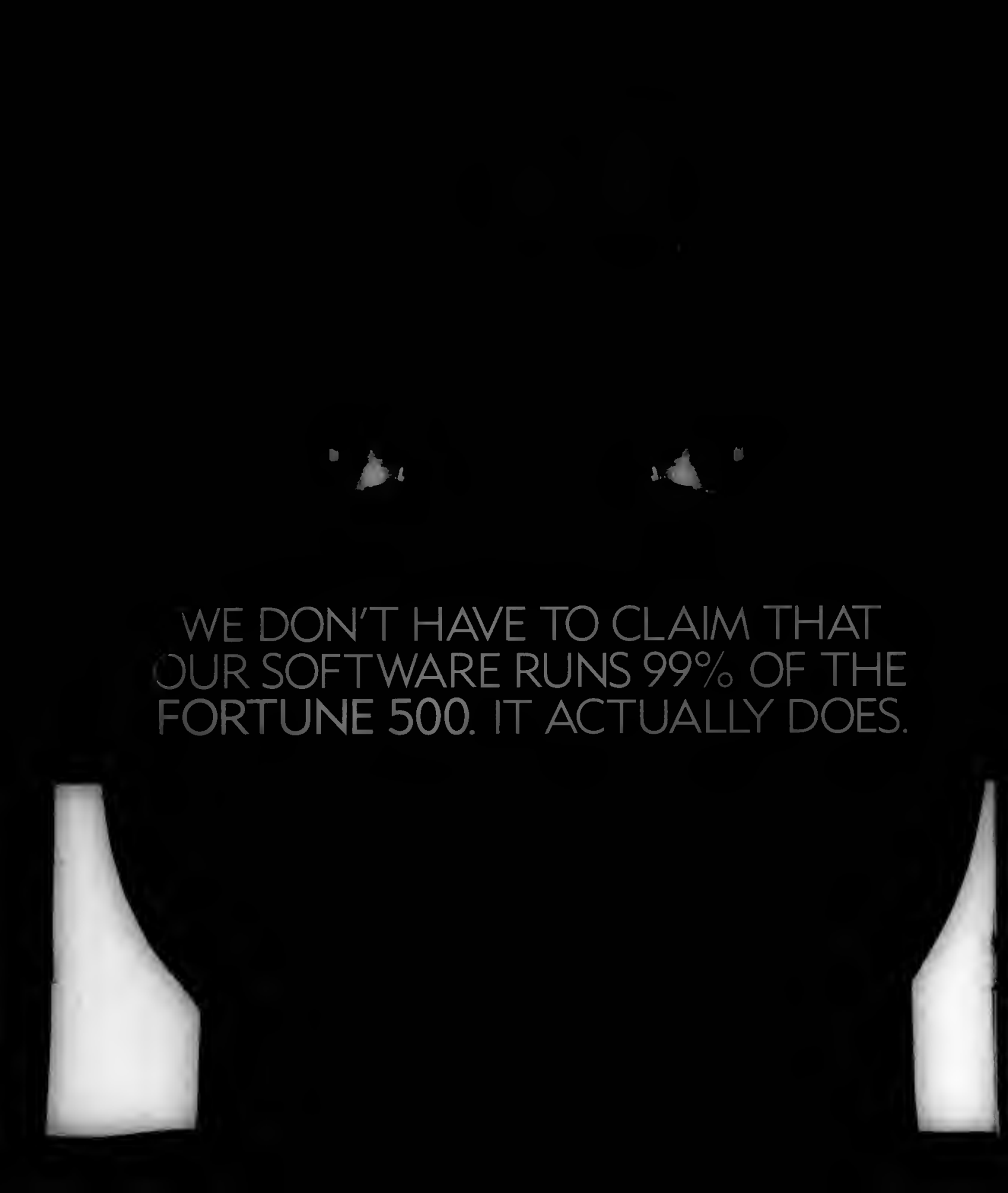
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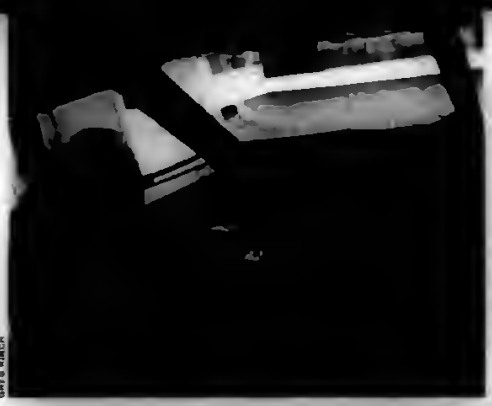

GREG KINCH

LIGHTENING THE LOAD

After years of having to contend with heavy flight manuals and other paper-intensive documeots, pilots like JetBlue Capt. Ray Meunier are finally getting the opportunity to use laptops in the cockpit. But it may take years for all airlines and aircraft makers to catch on.
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RICHARD MORGENSTERN

OPEN-SOURCE DATABASES BLOOM

After all the talk about operating systems and Web servers, the hidden treasure of the open-source movement may be database systems. **PAGE 48**

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SURPRISING WAP

Hitesh Seth at Silverline Technologies makes the case for WAP 2.0 but says it needs support from the marketplace to reacb its potential.
www.computerworld.com/wireless

SEYBOLD TO FIORINA AND CAPELLAS: GOOD JOB, GREAT IDEA

Patricia Seybold, CEO of the Seybold Group, writes an open letter to Carly Fiorina and Michael Capellas congratulating them on the merger of HP and Compaq.
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WHAT DO YOU THINK OF THE HP/COMPAQ MERGER DEAL?

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WHAT IS THE STATE OF SECURITY?

PentaSafe Security Technologies is surveying as many security managers as possible to find the answer.
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User Reaction

the respondents called it a merger of desperation on the part of the two vendors.

Many users voiced their concerns about the problems the merger could have for their IT operations, touching everything from service quality to technology options that some said could even have national security implications.

"I'm hoping that HP recognizes that Compaq's quality and customer service are superior to their own and will leverage that to their benefit," said J. Douglas Dalrymple, enterprise network and systems management practice leader at Sprint Corp.'s E/Solutions group, which uses both companies' products.

But he personally doubts it.

"Honestly, I believe that HP will try to short-circuit Compaq's quality and customer service infrastructure in order to reap some quick profit from the merger," he said.

At its own user conference in Chicago late last month, HP came under attack from its customers for its lagging service capabilities. In a session designed to address the problem, one audience member blasted the company. "HP has an internal IT problem. The left hand does not know what the right hand is doing. I've got three different customer IDs," he said.

"We're aware of the problems," Jurgeo Rottler, vice president of HP services, said at the meeting.

Many Compaq users worry that their technology will lose out in the deal. Hal Kuff, manager of technology services at Tessco Technologies Inc., a wireless communications company in Hunt Valley, Md., said that while it's still too soon to draw conclusioos, "at first blush, I see little positive news for OpenVMS or Tru64 [Unix]."

Tessco depends on legacy equipment installed by Digital Equipment Corp., which Compaq acquired in 1998. "With the HP scenario, we have serious coocerns about the ongoing support of those two operating systems," Kuff said.

Perhaps the gravest concerns were raised by David Cooper, senior scientist and former CIO at Lawrence Livermore National Laboratory in Livermore, Calif. "We have not been able to get HP to show much interest in high-performance computing, except at the low end," he said.

National Security

Compaq is currently developing the 30 TFLOPS Q Machine as part of the government's Accelerated Strategic Computing Initiative, which is intended to keep the U.S. at the forefront of scientific computing. Cooper, who is on a presidential commission for advanced technology, characterized that goal as "a national security issue."

"If Hewlett-Packard drops out, high-performance computing is in a very tenuous position," said Cooper.

Jim McDonnell, HP's vice president of worldwide marketing and business customer organization, told *Computerworld* that although he's unfamiliar with the specifics of the Q Machine, the company will hooor all of Compaq's agreements.

Other large Compaq deals were clouded by the announcement. Less than two weeks ago, Compaq inked a $100 million deal with Sabre Holdings Corp. in Fort Worth, Texas, to move its massive airline reservations system off a mainframe environment and onto Compaq's Himalaya servers.

"We don't anticipate it impacting us, but we'll have to have some further conversations with them to verify that," said Sabre spokeswoman Kathryn Hayden.

At Auburn Hills, Mich.-based Gedas Inc., which provides data communications for Volkswagen of America Inc., also in Auburn Hills, IT users fretted about desktop options.

"Our desktop decisions are based oo leasing," said Elliot Zeltzer, Gedas' manager of telecommunications and data services. "A third of our PCs roll [over] every year. We're a heavy Compaq user. This makes the market cloudy going forward."

Nearly everyone contacted by *Computerworld* last week acknowledged that it's too early for a meaningful assessmeot of what the merger will mean for a company's operations. But the timing couldn't have been worse for some IT users.

"We're in a trough of disillusionment right now," said Paula Hunter, chairwoman of the 450-member ASP Industry Consortium in Wakefield, Mass. The current market instability contributes to everyone's overall nervousness, she added.

But not everyone focused oo the negative aspects of the deal.

FAQ

What's the deal? HP and Compaq on Sept. 3. announced an agreement to merge. Based on figures reported for the past four quarters, the combined company would have annual sales of $87.4 billion and operating income of $3.9 billion. That's slightly less than industry leader IBM's total sales of $90.1 billion in the past four quarters.

Who will run the new company? HP Chairwoman and CEO Carly Fiorina, 47, will hold the same positions in the combined company. Compaq Chairman and CEO Michael Capellas, 46, will be president of the new company.

The new HP will be structured around four operating units: Imaging and Printing will be led by Vyomesh Joshi, who is now president of Imaging and Printing Systems at HP; the Access Devices unit will be led by Duane Zitzner, who is now president of Computing Systems at HP; the IT Infrastructure business, encompassing the server, storage and software divisions, will be led by Peter Blackmore, who is now executive vice president of Sales and Services at Compaq; and a services business with approximately 65,000 employees in consulting, support and outsourcing will be led by Ann Livermore, who is now president of HP Services.

How many employees will the new company have? Initially, the combined company will have 149,000 employees, but HP expects to cut some 14,000 workers.

Where will its headquarters be? The new company will be located in Palo Alto, Calif., where HP has its headquarters now. However, the company indicated that it would retain a strong presence in Houston, site of Compaq's headquarters.

What's the value of the deal? Compaq shareholders will receive 0.6325 of a newly issued HP share for each share of Compaq they hold. HP shareholders will own approximately 64% and Compaq share owners 36% of the merged company. Initially, HP, offering $2.41 over Compaq's Aug. 31 closing price of $12.35, valued the deal at $25 billion. But investors reacted badly to news of the deal, and stock prices for both companies dropped dramatically last week, then rose slightly on Thursday and Friday. By midday Friday, stock prices were $17.77 and $10.39 per share for HP and Compaq, respectively.

What happens next? HP expects to close the deal in the first half of next year. By laying off employees and trimming redundancies in the two vendors' product lines, HP expects to save $2 billion in fiscal 2003. The Compaq brand will essentially disappear.

– Compiled by Jennifer DiSabatino

How HP and Compaq Compare

A quick look at how HP, Compaq and the planned new company to be formed by the two of them measures up against major industry players.

	Hewlett-Packard	Compaq Computer	HP/Compaq combined	IBM	Dell	Sun
Total revenue (past 4 quarters)	$47B	$40.4B	$87.4B	$90B	$32.6B	$10.2B
Total net income (past 4 quarters)	$1.4B	-$323M	$1.1B	$8.4B	$1.5B	$99M
Total staff	88,800	85,000	145,000	325,000	35,300	43,000
2001 Fortune 500 ranking	19	21	N/A	8	48	125
Market capitalization	$48.5B	$22.6B	N/A	$167.5B	$58.6B	$47.2B

Notes: HP earnings are unaudited FY2000 Q4 through FY2001 Q3. Compaq, IBM, Dell and Sun earnings are unaudited FY2000 Q3 through FY2001 Q2. Combined company HP/Compaq earnings and data are based on IDG News Service calculations for the two companies' past four reported quarters and from estimates provided by the companies. Capitalization figures from Multex Global Estimates based on Tuesday closing prices.

SOURCES: IDG NEWS SERVICE, FORTUNE MAGAZINE, MULTEX GLOBAL ESTIMATES

"Ultimately, what will happeo is that HP will focus oo getting more [cost-effectiveness] out of technology, and that's a good thing," said Royce Green, CIO at Affiliated Computer Services Inc. in Dallas.

And since the acquisitioo would bring Tandem's high-volume transaction processing capabilities under HP's control, that could mean a competitive surge betweeo IBM and HP in the eoterprise, said Eric Dean, CIO of United Airlines, Inc., which is a very large customer of HP's.

"When Compaq bought Tandem, I thought, How sad — they don't have 'clue one' about dealing with major institutions," Dean said. "But HP gets it. I did a lot of Tandem consulting way back when, and I've been continually impressed with its technology. Now, this is a big 'if,' but if the managemeot structure of the new merged organization can recognize the potential of leveraging the Tandem platform, it would oow be ensconced in the second-largest computer manufacturer in the world."

James Cope, Jennifer DiSabatino, Pimm Fox, Matt Hamblen, Maryfran Johnson, Sami Lais and Marc Songini contributed to this story.

Quick Link What do you think? Join our discussion forum. www.computerworld.com/q?a1020

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Benefits

merger," said Joseph Pollizzi, president of Encompass, a Chicago-based Compaq user group. "The part that really scares me is when you look at the huge boatload of systems" that a merged HP will have to carry, he said. "We need to know what is going to win and what's going to lose."

In the aftermath of the anoouncement, users and analysts agreed that in the short term, a merged HP is unlikely to look very different from an indepeodent ooe, except oo the services-delivery front.

"It's not like the two companies were yards and yards apart" in terms of their technologies or customer bases, said Laurie McCabe, an analyst at Summit Strategies Inc. in Boston.

At the very highest end, Compaq's NonStop Himalaya platform will give HP a proven and profitable fault-tolerant technology to pitch at enterprises, said Jonathan Eunice, an analyst at Illuminata Inc. in Nashua, N.H. But those busioesses will likely comprise a very narrow segment of the high-end market. To truly take advantage of its technology, HP must migrate bits and pieces of it downstream to its Unix and Windows servers, he said.

On the server front, few people expect a merged HP to support both its own HP-UX and Compaq's Tru64 Unix for long. Instead, look for a new generation of HP-UX that integrates elements of Tru64 Unix, most notably its advanced clustering capabilities, said Rich Partridge, an analyst at D.H. Brown Associates Inc. in Port Chester, N.Y.

Such a merged operating environment should be a lot more scalable and reliable than today's HP-UX and support more applications as well.

"I expect that their Unix offerings will end up being much stronger, which would be nice; I'm happy to stay away from the proprietary Sun world and the sketchy support of the Linux world," said Sean Nolan, CIO at Drugstore.com Inc. in Bellevue, Wash.

Oo the other hand, a combined HP and Compaq should have a more immediate and significant impact on the Intel Corp. server froot, said Edward Witkow, president of Interex, a Sunnyvale, Calif.-based HP user group, and director of IT at Metaldyne Corp. in Plymouth, Mich.

Compaq has already announced its intention to phase out its AlphaServers and standardize its enterprise architectures based oo Intel's emerging 64-bit Itanium processor family. And HP, which is one of the co-developers of Itanium, is well along in its own plans to move everything over to Intel's platforms.

Because of overlap, only one company's notebook, desktop and PC server lineup will survive the merger, Witkow said.

Quick Link An expanded version of this article is available on our Web site. www.computerworld.com/q?63832

Tips on Dealing With New Giant

How are you supposed to negotiate a contract with HP or Compaq in the wake of their merger announcement? David Ochroch, a senior analyst at Rainer Associates Inc. in San Francisco, and Marie T. Reeve, a vice president at Cicala & Associates LLC in Hoboken, N.J., made the following suggestions:

- Ask for at least 36 months' notice before hardware, an operating system or a system software product is to be discontinued.
- When dealing with application vendors, negotiate a contract that says the software will continue to be supported and maintained on whatever Compaq or HP platform it runs on for the life of your application.
- Get written guarantees on how long upgrades will be available for hardware, operating systems and any system software that is provided by the respective vendors.
- Negotiate price caps on maintenance agreements relating to hardware, system software and operating systems, especially when dealing with technologies that the new company is likely to be drop or phase out.
- When negotiating service-level agreements, try to ensure that you will be compensated for any loss in quality and response times that are likely to result from job cuts or other cost-cutting moves.

– Jaikumar Vijayan

HP-Compaq Product Line Comparisons

If the merger succeeds and HP absorbs Compaq next year, the new company will have many overlapping product lines. Here are some of their current products, along with IBM's corresponding slate:

	HP	Compaq	IBM
Enterprise PCs	Vectra VL400, Vectra VL800,	DeskPro, iPaq, Evo	NetVista A
Enterprise small PCs	ePC	iPaq	NetVista X
Enterprise thin clients	N/A	Thin Client, Evo	NetVista N
Enterprise notebooks	Omnibook	Evo, Armada	ThinkPad A, T, X
Graphics/engineering workstations	Workstation	Evo, DeskPro, Professional, AlphaStation	Unix RS/6000, IntelliStation
Handheld PCs	Jornada 540 Pocket PC, Jornada 700 Handheld PC	iPaq Pocket PC, iPaq Blackberry	WorkPad
Servers, entry-level, Windows	NetServer e200, e800, LC 2000, LH 3000, RX4610	ProLiant DL	Netfinity 5000, eServer xSeries 200
Servers, midrange, Windows	NetServer LP 1000r, 2000r; LH 6000; LT 6000r	ProLiant ML	Netfinity; eServer xSeries 300, 330
Servers, large, Windows	NetServer LPR, LXR 8500	ProLiant CL	Netfinity 8500R, eServer xSeries 370, 380
Servers, entry-level, Unix	HP 9000 A-class, L-class, RX 4610	AlphaServer DS	eServer pSeries 620, RS/6000
Servers, midrange, Unix	HP 9000 N-class	AlphaServer ES	eServer pSeries 660
Servers, high-end, Unix	HP 9000 V-class, Superdome	AlphaServer ES, SC	eServer pSeries 680; NUMA-Q; RS/6000 S80, SP
Servers, high-availability	NetServer AA	NonStop Himalaya, NonStop Integrity	NUMA-Q
Proprietary operating systems	HP-UX, MPE/ix	OpenVMS, Tru64 Unix, NonStop Kernel	OS/2, OS/400, zOS, AIX, VM, VSE, PC DOS,
Systems management	OpenView	Nothing comparable	Tivoli
Development tools	Limited	Moderate	Extensive
Clustering software	Yes	Yes	Yes
Storage management software	Yes	SANworks	Tivoli

Compiled by Russell Kay for Computerworld, Sept. 5, 2001, based on information available on the respective companies' Web sites.

Quick Link For a more detailed version of this chart, additional resources and related links, please visit our Web site: www.computerworld.com/q?a1010

ANALYSTS' PREDICTIONS

How will the merger impact corporate users?

MARTIN HINGLEY, IDC
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HEWLETT-PACKARD

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COMPAQ

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BY PATRICK THIBODEAU
WASHINGTON

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"There is no threshold," said Torres. "It depends on the sectors; it depends on the competitive structure of the market."

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IBM, Dell Seen as the Big Winners

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The choice alternatives, many analysts predict, are IBM, mainly for services, and Dell Computer Corp., mainly for hardware, especially PCs and servers. Sun Microsystems Inc., meanwhile, touts itself as able to attract the potentially estranged hardware and services customers with perfect timing, as it's slated to roll out a high-end server product line based on the UltraSPARC chip at the end of this month.

One of the most negative reactions to the deal came from Martin Reynolds, an analyst at Gartner Inc. in Stamford, Conn. "The product lines of both HP and Compaq cannot continue," Reynolds said. "What this means to IT managers is that you cannot count on long-term availability, giving IT managers an incentive to move to IBM or Dell, where you know there's a future."

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– Matt Hamblen and Marc Songini

The Two Together

How a combined HP/Compaq entity shapes up:

PC shipments and market share (Q2 2001)
Unit shipments (millions) 5.6
Market share 19%

Total server revenue and market share (Q1 2001)
Revenue $4.07B
Market share 30.6%

Services revenue and market share (2000)
Revenue $14.0B
Market share 3.6%

Disk storage systems revenue and market share (2000)
Revenue $8.34B
Market share 26.3%

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COMPILED BY CAROL SLIWA

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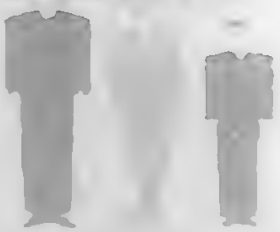

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SOURCE: IDC, FRAMINGHAM, MASS.

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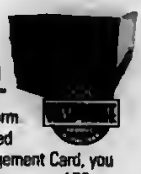
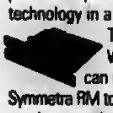


The new Symmetra RM puts the high availability of the proven and patented Symmetra® Power Array™ technology in a rack-mountable form.



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APC monitors all UPS parameters, tailored to your desired response. Regular UPS parameter and event reports are issued with event frequency, duration, and resolution, offering immediate enhancements to your investment.

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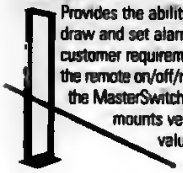

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- **ProtectNet** rack-mounted data-line protection
- **PowerNet Manager** collects UPS/power status information for fast problem diagnosis
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- **2-Post Racks / 4-Post Open Frame Racks**

Tivoli SOLARIS HP OPENVIEW

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BRIEFS

HP to Buy Digital Printing-Press Maker

Days after disclosing its planned acquisition of Compaq Computer Corp., Hewlett-Packard Co. said it also plans to pay as much as $882 million in cash and stock to buy Indigo NV, a Maastricht, Netherlands-based maker of digital color printing presses for commercial and industrial users. The company bought a 13.4% stake in Indigo last year.

PGP Security Warns Of Hole in Firewall

Network Associates Inc.'s PGP Security division said a hole in its Gauntlet firewall software could allow attackers to gain user privileges or access networks protected by the technology. Santa Clara, Calif.-based PGP Security released a patch for the buffer overflow vulnerability and said installing it is "mandatory."

Manugistics Faces Loss, Lowers Forecast

Supply chain software vendor Manugistics Group Inc. disclosed that it expects to report a loss of up to $10.7 million for its second fiscal quarter ended Aug. 31 on revenue of about $70 million. The company had earlier forecast sales of $90 million. Rockville, Md.-based Manugistics also said it's planning cost-cutting actions.

IBM Readies 8-CPU Midrange Unix Server

IBM has announced an eight-processor midrange Unix system for use as a Web server or in Java-based applications. The company said the new machine offers one and a half times more commercial processing power than its older RS/6000 Model M80. The rack-mountable pSeries 660 Model 6M1 starts at $62,000 and is due out Sept. 21.

Pocket PC OS Gains Enterprise Features

But Microsoft orphans first-generation Pocket PCs from HP and Casio, say users

BY BOB BREWIN AND MATT HAMBLEN

MICROSOFT introduced a new version of its Pocket PC operating system that's tweaked to support enterprise users with a host of new features, including a built-in virtual private network (VPN) client. But Pocket PC 2002 won't support first-generation hardware from Hewlett-Packard Co. and Casio Computer Co.

Ed Suwanjindar, product manager of the mobility group at Microsoft Corp., said the Pocket PC 2002 operating system will support only ARM chips from manufacturers such as Intel Corp., and as a result, users of older HP Pocket PC hardware such as the Jornada 560 "will not be able to move to the new software."

However, he said, the new software can run on older Pocket PCs manufactured by Compaq Computer Corp., which HP plans to acquire.

Ellen Van Etten, a spokeswoman for HP, said the company is "working on a promotion for existing Jornada customers to purchase the new Jornada" at a discount after the new pocket PC hardware is introduced by manufacturers Oct. 4. Older Jornada handhelds run on an SH3 chip made by Tokyo-based Hitachi Ltd.

A spokesman for Tokyo-based Casio couldn't be reached for comment by deadline. Older Casio Pocket PC hardware runs on MIPS chips manufactured by NEC Corp., also in Tokyo.

The backward-compatibility problem aside, Suwanjindar said Microsoft has added several features to the new Pocket PC operating system targeted directly at enterprise users, including a feature that mimics the Graffiti handwriting recognition system used by rival Palm Inc. in its handhelds.

HP'S JORNADA 560 won't be able to support the Pocket PC operating system.

Pocket PC 2002 also has a built-in chat feature that Suwanjindar described as Microsoft's answer to the popular AOL Instant Messenger client from Dulles, Va.-based America Online Inc.

The Pocket PC 2002 also provides users with a built-in terminal server, which makes it easier to connect and log in to corporate networks. Other features include support for a variety of wireless connectivity options, including standard 802.11b wireless LANs and cellular networks.

Enterprise users welcomed the new features. Alex Hu, vice president of audit technology at J. P. Morgan Chase & Co. in New York, said the built-in VPN client is "a big win for enterprises such as ours."

"Palm, to me, is just a high-powered organizer," Hu added. "What you need for enterprises goes much further.

"We believe in handhelds, but all the pieces aren't quite there yet," Hu said. "Maybe in two years, a handheld will be like a laptop with paging capability. We're really looking hard at the Pocket PC, and we're going to get the Pocket PC 2002 for small trials and evaluations."

Ken Dulaney, an analyst at Gartner Inc. in Stamford, Conn., said the new features incorporated in the Pocket PC 2002 drive it further up the enterprise interest chain.

"These enhancements will give Palm and any others that mount an assault on the enterprise a more difficult time," he said. "Key areas of improvement are in security and connectivity, two very important issues for IT."

Dulaney added that he had expected more "seamless integration of the onboard handheld and Office components," but he didn't elaborate.

Compaq spokeswoman Nora Hahn said that between now and Oct. 4, owners of the company's iPaq Pocket PC will be able to upgrade to the new operating system at no charge. After Oct. 4, users can upgrade for a fee of about $30, she said.

Quick Link For more information, visit our Mobile/Wireless Knowledge Center.
www.computerworld.com/q/?k=1000

Indus International Aims to Regroup at User Conference

BY MARC L. SONGINI

At its annual user conference this week, business applications vendor Indus International Inc. plans to announce software aimed at midsize users and enhancements of e-business and mobile products.

But the Atlanta-based maker of and asset management software may also have to soothe users' fears over its continued financial struggles.

For instance, despite a 32% jump in revenue on a year-to-year basis, Indus reported a $6.7 million loss in this year's second quarter — its seventh straight quarterly loss.

The firm nearly broke even on an operating basis in the second quarter, though. And Indus last week said claims filed against it by the Securities and Exchange Commission in the aftermath of a 1999 revenue restatement have been resolved.

That may give the new management team put in place early last year a chance to finally focus on its plans for the company's flagship PassPort and Enterprise MPAC applications.

Many attendees at the IndusWorld conference in Orlando "will be interested in what the new management team has to offer and what their vision of the future is," predicted Dave Taylor, enterprise resource planning manager at Idaho Power Co. in Boise.

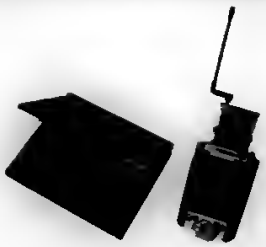
The electric utility uses Indus' PassPort 8.0 software to handle such tasks as design engineering, accounts payable and inventory purchasing. Taylor said Idaho Power is interested in moving to the 9.0 release that became available in July, and he credited Indus for developing "more of a strategic direction" for its products.

For Barry Smith, a maintenance manager at Houston-based offshore drilling company Transocean Sedco Forex Inc., Indus' long-term survival and how it will lead its users to the Web are two top concerns.

Transocean currently runs Enterprise MPAC 8.0 for maintenance procurement and inventory functions. Smith said he wants to see how the Web will affect the software, particularly in the area of security.

3 CANCELLED FLIGHTS.

27 ORDERS TRACKED.



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COMPAQ
Inspiration Technology

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Windows 2000 Server Family

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Microsoft

Infighting Plagues Insurance Companies' CRM Efforts

Push to replace paper processes fraught with organizational, leadership challenges

BY LUCAS MEARIAN
WASHINGTON

INFORMATION technology managers at insurance companies who are fighting to replace paper-based business models with technology that can improve efficiencies and customer relationship management (CRM) are up against formidable in-house political boundaries and old-school CEOs who are loathe to change.

That was the view expressed by attendees last week at the LOMA Emerging Technology Conference here.

For instance, Cecilia Tam, an information systems manager at London Life Insurance Co. in London, Ontario, said territorial disputes between business departments and affiliated companies can not only cause project loggerheads, but they can also prevent disparate IT departments from agreeing on a single XML language.

"How are you going to amalgamate?" she said.

Tom Peters, a consultant and author of several best-selling business management books, agreed. "Ninety-eight percent of CRM is total B.S. unless you're willing to do the heavy lifting in the organization," Peters said.

While emphasizing the business aspects of CRM over technology for its own sake, Peters also mocked companies and entrenched CEOs who are squeamish about spending for new technology during the current economic slowdown. "This is the moment in time to be aggressive in technology spending while your competitors pull in their horns," he said.

Peters said IT managers who want to advance ideas should bypass senior leaders who are unwilling to approve spending on untested technologies. Instead, they should partner with fellow "geeks" within their organizations and then approach CEOs directly with their ideas.

"It's stupid trying to sell a new, untested technology up the command chain. Find someone who will screw around and co-concoct great visions," said Peters, author of the best-seller *In Search of Excellence: Lessons from America's Best-Run Companies* (Warner Books, 1982).

Security Concerns

Conference attendee Delores Bridges, an IT systems analyst manager at The MONY Group Inc. in New York, said most companies simply don't grant free rein to IT managers on unproven technology.

"It's OK to take the risk, but you can't do that with big numbers," she said of her own company.

Along with collecting more information on customers, security, or a lack thereof, is another critical issue for insurers.

Steve Clauson, director of IS security at Mutual of Omaha Insurance Co., is nine months into a two-year project to completely revamp security at his company. Like other insurers, the Omaha-based firm has been spurred to beef up its security activities by regulations such as the Gramm-Leach-Bliley Act and the Health Insurance Portability and Accountability Act, in addition to government contracts that require more stringent security.

Clauson recommended that companies begin by classifying data as high, midlevel or low priority in order to focus expensive security technology only where necessary.

"If you treat everything the same, you're spending a lot more than you need to," he said.

Centralizing administration of security, including support and control and installing intrusion-detection systems, are also high on Clauson's list of priorities.

By installing intrusion-detection technologies at Mutual of Omaha, Clauson and his team have been able to track attempted virus infections throughout the year, including 560 attempts on the firm's servers last month alone, 190 of which were from the Code Red worm. ▶

Insuring Customer Relationships

Areas that insurance companies should focus on when deploying a CRM system:

The customer experience: Focus on getting the appropriate level of service to each group of customers.

Customer value: Be aware of the profitability of each customer as services are offered. Most firms overinvest in unprofitable customers and underinvest in profitable ones.

One and done: Reduce call volume by developing a focused approach that meets the customer's needs on first contact.

Call center efficiency: Make sure the call center is operating at a level that makes use of information resources and is staffed to provide the expected levels of service.

Centralize your CRM system through shared services: Don't let political boundaries between departments hinder progress.

Reorganize the business: Don't get caught up in the technology; it's about transforming the organization and the way you do business. If the technology doesn't have a business value, why do it?

SOURCE: CAP GEMINI ERNST & YOUNG LLC, NEW YORK

Privacy Hole Found in Verizon Wireless Site

Company slow to fix flaw despite expert's warning

BY DAN VERTON

Security experts discovered a flaw last week in the Web site operated by Verizon Wireless that may have exposed the private information of customers who used the site to view their personal cell phone bills.

Marc Slemko, a software developer in Seattle, posted the warning Sept. 1 on the BugTraq security mailing list after notifying Verizon of the problem on Aug. 19 and receiving no response. A half-dozen other security experts later confirmed his findings.

The privacy hole affected users who logged on to the Verizon Wireless Web site and used the My Account feature to view or change their cell phone billing and account information. The Web site address for the feature assigns session identifications sequentially as each user logs in. An ID is valid until a user logs out or the session times out. However, because it's the only session ID used, Slemko said, it's easy to manually access the account of other users by guessing their session IDs. In addition, "automated tools [can] grab this information in bulk as users log in over time," he wrote.

The vulnerability put at risk information such as names, addresses and records of calls placed and received, along with the phone numbers and approximate locations of users when their calls were made, according to Slemko and others.

Brian Wood, a spokesman for Bedminster, N.J.-based Verizon Wireless, said IT workers at the company fixed the hole as of 5 a.m. EDT on Sept. 5. When asked why it took Verizon so long to act on Slemko's Aug. 19 alert, Wood said Slemko didn't properly "escalate" his query.

"His e-mail apparently went into the normal e-mail box and was handled by a front-line customer service representative," said Wood. "It kind of got bogged down in the system." However, Wood also noted that previous security tests Verizon ran on the site hadn't uncovered the flaw.

Wood said the flaw only affected a portion of the users who signed up for online billing. The hole was never an issue for former customers of Bell Atlantic Mobile, GTE Wireless, AirTouch Cellular or PrimeCo Personal Communications LP, the companies that now make up Verizon Wireless.

"We've not seen any evidence that someone might have taken advantage of this hole," Wood said.

Verizon, which has more than 28 million wireless customers, isn't alone in suffering from predictable online session IDs, according to a study presented by the MIT Laboratory for Computer Science last month at the annual Usenix security conference. Of the 27 sites investigated, many were found to have inadequate user authentication capabilities. ▶

Burger King to Outsource IT Services to Perot Systems

Move precedes separation from parent company

BY LINDA ROSENCRANCE

Burger King Corp. last week said it has signed a multiyear deal to outsource its IT support and most of its technology infrastructure to Perot Systems Corp.

Under the terms of the contract, Dallas-based Perot Systems will provide data center management, help desk support, enterprise systems management and global network management for the Miami-based fast-food giant, according to a Burger King announcement. Financial terms of the contract weren't disclosed.

The outsourcing deal is part of a series of moves to prepare Burger King for separation from its London-based parent company, Diageo PLC, an international food and beverage corporation. Diageo is planning to spin off or sell the fast-food chain.

Burger King spokeswoman Kim Miller said Perot will move Burger King's existing data center operations to Perot's technology center in Plano, Texas. Burger King now shares data center facilities with Minneapolis-based The Pillsbury Co. and other Diageo companies, Miller said.

Perot has completed similar projects for Tenet Healthcare Corp. in Santa Barbara, Calif., and UBS AG in Zurich.

Transition Strategy

As part of its technology transition, Burger King will replace many components of its IT infrastructure to make it more efficient and flexible, the company said.

Perot will also handle a major portion of the infrastructure platform for Burger King, according to Miller. She declined to provide details of the upgrade for competitive reasons.

"Speed plays a critical role in this business — both at the restaurant level as well as in the area of infrastructure support," noted Bennett Nussbaum, Burger King's executive vice president and chief financial officer, in the statement released by the company.

Nussbaum said that aligning with Perot will let the restaurant chain implement technology innovations and service enhancements while keeping a lid on rising labor costs.

Perot began the migration in July and expects to complete it by year's end, according to Harvey King, who manages the Burger King account for Perot.

"We will be decoupling Burger King's current network and transitioning it to our environment and managing it on behalf of Burger King," King explained.

Mitchell Speiser, an analyst who tracks the quick-service restaurant industry at New York-based Lehman Brothers Holdings Inc., said it makes perfect sense for Burger King to outsource its IT functions to Perot.

"Like all [businesses], Burger King should stick to its core competencies and outsource other services," Speiser said. "It is typical in this environment [for businesses] to focus on their core competencies."

Quick Link For more outsourcing coverage and related resources, visit the xSP Knowledge Center. www.computerworld.com/q?k2300

JUST THE FACTS

Menu of IT Functions

Perot Systems will provide Burger King with the following services:

- Data center management
- Help desk support
- Enterprise systems management
- Global network management

B2B Rivals Eye Ariba's New User Benchmarking Program

Commerce One, i2 express interest in participating in usage data comparisons

BY MICHAEL MEEHAN

Some of Ariba Inc.'s top rivals in the business-to-business software market indicated last week that they're willing to take part in a new user benchmarking program being set up by Ariba and a nonprofit research organization.

Ariba and the Tempe, Ariz.-based Center for Advanced Purchasing Studies (CAPS) said last month that they plan to open the benchmarking program to users who have installed online procurement software developed by other vendors.

Last week, officials at both Commerce One Inc. and i2 Technologies Inc. said they're interested in the idea.

The benchmarking is meant to help users compare their electronic purchasing systems to ones set up by other companies and to evaluate the business practices they have built around the technology.

CAPS, which is affiliated with Arizona State University, will collect a variety of information from the systems of participating companies, focusing initially on usage, with plans to expand to system configuration issues at a later date.

The program comes as many users are still trying to justify their investments in the expensive procurement packages they have purchased and as struggling business-to-business vendors like Sunnyvale, Calif.-based Ariba are looking for new ways to convince companies that the technology is worth the cost.

- The initial system investment made by companies
- Transaction volumes, both overall and by line item
- The number of active and nonactive user accounts
- The dollar value of purchases processed by systems
- Average purchase order approval times
- The number of approvals needed on purchase orders

"Any information we could get to help us out would be fantastic," said Tom Luckett, manager of enterprise services at Dana Corp., an automotive parts maker in Toledo, Ohio. "Right now, there's no open forum for getting that kind of information."

Luckett is responsible for his company's global implementation of Ariba's electronic procurement system. His benchmarking efforts to date have revolved around contacting other Ariba users to share business process and implementation troubleshooting data.

Luckett called the rollout of such systems "an ongoing battle" and said better benchmarking data could help IT managers defend the projects.

"Putting in a system like this is a cultural shock in most organizations, so any excuse not to use it is a good one in most cases," he said. "Plus you have to constantly evaluate [whether] you want to keep pumping money into this thing."

CAPS will automatically collect information from systems on a monthly basis, and the identities of participating users won't be disclosed.

"There's an immense amount of data in these systems that we can pull," said Steven Wade, director of benchmarking research at CAPS.

Randy Joss, director of customer metrics at Ariba, acknowledged that users have had little concrete information on which to base their decisions about whether to go forward with business-to-business projects.

"The thing that's filled the gap really has been marketing and sales and, I'm sure customers would say, hype," Joss said.

Ariba and CAPS said they will officially invite other business-to-business vendors to take part in the benchmarking program this month.

Online procurement vendors have long relied on CAPS for research data, said Scott Wilkerson, manager of solution strategies at Pleasanton, Calif.-based Commerce One. "CAPS is definitely agnostic," he said, adding that Commerce One is looking forward to joining the program.

Gayle Hayes, director of supplier relationship management at Dallas-based i2, said she hopes the benchmarking program will expand to track other business metrics and to provide some sort of scalability measurements.

"How many users and suppliers can you push through those systems before you overload them?" she said. "It would be nice to know."

Hacker Forces Some Banks To Cancel Visa Debit Cards

Incident highlights security vulnerabilities at some third-party payment vendors

BY DAN VERTON
FALLS CHURCH, VA

Several banks in the Washington area have been forced to cancel and reissue thousands of Visa debit cards after a hacker allegedly intercepted a file containing purchase data from a local online merchant.

First Virginia Banks Inc. in Falls Church, Va., last week began notifying 500 of its customers that their card numbers and expiration dates, phone numbers and addresses had been compromised. Likewise, Atlanta-based SunTrust Banks Inc., which has branch offices in northern Virginia, Washington and Maryland, began monitoring several customer accounts that may have been compromised.

This comes two weeks after Washington-based Riggs Bank sent letters to 3,000 of its customers informing them that a local online merchant's customer database containing their Visa debit card numbers had been hacked and compromised. Officials at First Virginia, Riggs, Visa International Inc. and the FBI declined to name the retail operation where the data originated.

All the payment data belonged to customers who had made purchases from an online merchant in the Washington area. However, Visa declined to say whether the data was taken directly from a system belonging to the merchant or from one of the many companies that process electronic payments between online retailers and Visa.

Visa characterized the incident as "a potential compromise of cardholder data stored on a third party's computer."

First Virginia has "no way of knowing which merchant it is that had their database hacked," said Rick Bowman, the bank's chief financial officer. "Visa does not disclose that information."

A Riggs official, who spoke on condition of anonymity, said, "It would not be fair to identify the merchant" because the matter is still under investigation by the FBI and the incident could have been the result of security holes at one of several third-party companies that process Visa transactions. To date, there is no evidence of fraud stemming from the incident, the official said.

News of the incident comes as Foster City, Calif.-based Visa is unveiling incentives for online retailers to adopt its Visa Authenticated Payment system. Announced Sept. 4, the payment system is designed to help those merchants conduct real-time verification of the identities of Internet shoppers.

Mike Yakel, vice president of Visa USA's e-Visa division, said all online payment transactions go through "an acquirer," or third-party payment vendor, that submits the purchase from the merchant to the Visa system over the Internet. There are 50 to 100 companies nationwide that provide payment services.

"Because the Internet is an open network, there is far more potential that the data could be accessed by somebody," said Yakel.

Starting next year, a new Visa policy will require online merchants to offer encryption protection to cardholders during their online purchases. Any electronic merchant participating in the Verified by Visa program satisfies this requirement (see chart).

Yakel said banks that issue cards and sponsor payment vendors to become part of the Verified by Visa initiative also assume liability and have a responsibility to prevent security breaches from occurring.

Fighting Back

PARTICIPANTS IN THE VERIFIED BY VISA PROGRAM

- Tickets.com
- Buy.com
- FirstChocolate.com
- TheLostToys.com
- JencoTreasures.com
- GreatGolfEvents.com

SOON TO BE ADDED

- Target.com
- Dell.com
- CompUSA.com
- 1-800-flowers.com
- McAfee.com
- CDnow.com
- GiftCatalog.com
- MarshallFields.com
- Ashford.com

Cisco Bolsters Network Security Offerings

Features fill gap in enterprise network intrusion protection

BY JAMES COPE

Cisco Systems Inc. last week announced plans to introduce two new products as well as enhancements to its Safe security product suite, including a small-office firewall, upgrades to its intrusion-detection software and a router module designed to help virtual private networks (VPN) scale by 60%.

Cisco's offerings include Pix 501, a smaller version of its enterprise firewall Pix 5, with a four-port Ethernet hub. The firewall is designed for use by individual telecommuters and remote offices with 10 to 50 users.

Y.Y. Chen, a senior network architect at Miami-based Carnival Corp., the holding company for Carnival Cruise Lines, said he has been evaluating the firewall and is considering the product for securing network connections with 200 Carnival travel agents who work from their homes.

"The Web interface is easy to use, and we can use it to add our VPN configuration into the box," Chen said.

While there's certainly a demand for firewall technologies among small businesses and remote offices, "the smaller Pix is a reactionary move to companies like NetScreen and SonicWall," said Joel Conover, an analyst at Current Analysis Inc. in Sterling, Va., referring to NetScreen Technologies Inc. and SonicWall Inc., two Sunnyvale, Calif.-based makers of integrated firewall and VPN products for small businesses.

The 10-user version of the 501 firewall will sell for $595, and the 50-user version will cost $1,195, Cisco officials said. Both systems will be available by the end of the month.

Cisco Security Products

PIX 501 SOHO FIREWALL
- **Price:** $595 to $1,195
- **Availability:** By month's end

IDS HOST SENSOR
- **Price:** $7,995 for console packed with Cisco VMS; $5,000 for stand-alone console; agent software is priced $1,750 to $2,100 per host computer
- **Availability:** Now

VPN ACCELERATOR MODULE
- **Price:** $5,000
- **Availability:** Now

Cisco also announced plans to add a host-based intrusion-detection system called IDS Host Sensor to its security product lineup. The application is aimed at extending the software's ability to analyze and detect intrusion attempts from within the enterprise, in addition to Cisco's network sensor technology, which handles intrusion detection on the network perimeter. Conover said that Cisco's intrusion-detection system had lacked adequate host-based functionality and that the new system should fill the gap.

Cisco's IDS Host Sensor is available immediately as part of CiscoWorks VPN/Security Management Solution (VMS), which sells for $7,995 or for $5,000 in a stand-alone console. Each host computer protected against intrusion requires special agent software that communicates with the Host Sensor console. The agent software is priced from $1,750 to $2,100.

Cisco also announced plans to offer a VPN accelerator add-on module for its 7100 and 7200 Series routers. Priced at $5,000, the integrated network Layer 3 compression technology is designed to enable routers to scale up to 5,000 concurrent VPN sessions, an increase of 60% over VPNs without acceleration.

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www.computerworld.com/q?k1600

Hacker Forces Some Banks To Cancel Visa Debit Cards

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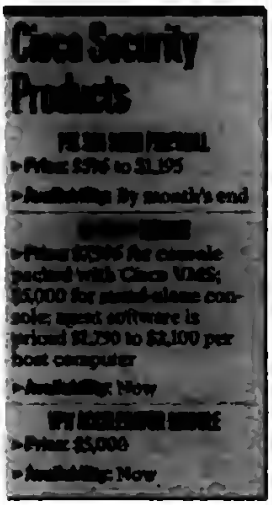
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The SNIA's relationship with Computerworld is providing an awareness of and access to the latest information on storage networking and advanced storage technologies to IT users and vendors. Since the advent of our partnership in 1999, our collective vision is to remain the leading source of information, education and guidance for the industry by promoting the evolution and acceptance of industry standards among vendors, implementers and users. We endeavor to accomplish this by producing the highest-quality industry conferences with our twice-annual Storage Networking World® and our first SNW® -EuroStorage event in Seville, Spain. Both feature an unparalleled Interoperability Lab program. Our series of topical storage White Papers is also continually read and respected

This *Storage Networking Industry Directory & Buyer's Guide* is yet another important component of our integrated industry information offering. I invite you to explore and consider the expertise, resources and storage solutions provided by the companies listed and profiled in this publication.

Larry Krantz
Chairman, Board of Directors
Storage Networking Industry Association

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The storage industry continues to provide strategic opportunities for organizations to leverage what might be referred to as the 'Double ROI Factor' — Return on Investment and Return on Information. IDC specifically projects increased demand for networked storage solutions.

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Regards,

John T. McArthur
Vice President, Worldwide Storage Research
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Rick Gately, Director, Sales
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Alacritech's 100 Series server accelerators and upcoming Integrated Storage Network Interface Card (IS-NIC), based on the company's standards-compliant SLIC (session-layer interface card) Technology® architecture, optimize the performance of servers, network-attached storage and IP storage devices IS-NIC will be the first universal adapter to support both IP storage and standard networking traffic. Unlike other TCP acceleration solutions, Alacritech uniquely provides network failover and link aggregation with seamless scalability across multiple adapters. *(SD/S, SNI)*

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Norcross, GA 30071
www.ami.com
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AMI, a leader in storage and computing innovations worldwide, offers 1U and 3U form-factor NAS and JBOD solutions with Ultra160 SCSI hot swap drive bays. The StorTrends 1108 1U/eight drive and StorTrends 1312 3U/12 drive solutions provide superior performance and AMI's optional NAS controller and custom-designed NAS software. *(SNI, DM)*

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Arch Data Systems Inc.
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Aristos Logic Corporation *
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949-380-3426

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Astrum Software
529 Main St., Suite 606
Boston, MA 02113
www.astrumsoftware.com

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www.att.com/solutions/datastorage
973-443-3343

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Bill Moeller, Director, Marketing
Chanchal Samanta, Chief Technology Officer
Larry Forman, Senior Vice President, Business Development

Availant Manager enables maximum storage management availability by providing an automated solution based on best practices. It observes storage utilization at the application, file system, and physical device levels, accurately predicts storage needs and takes action to eliminate the common causes of failure, facilitating successful achievement of business goals.

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Avantis' mission is to become the world's leading manufacturer of specialized CD/DVD network server appliances. Avantis' strategy is to offer innovative, integrated products that provide imaginative, complete solutions for end user requirements. All Avantis' products and software are designed and manufactured in house and in this way Avantis aims to build a reputation for innovation and quality that is second to none. Avantis aspires to be recognized as a "knowledge organization" and as a pioneer in the internet e-conomy of the future.

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Broadband Storage Inc. *
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Irvine, CA 92612
www.broadbandstorage.com

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Broadband Storage's goal is to meet the market demands for next-generation storage technology The company is developing a networked storage solution that simplifies data management by combining the security, ease-of-use and cost-efficiency of NAS devices, with the scalability and performance of SANs.

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Margaret Andrews, Manager, Partnerships Marketing
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Ciprico Inc. designs, manufactures and markets high-performance direct-attached and networked storage solutions, including intelligent hardware, software and professional services Ciprico storage solutions are designed for visual computing applications ranging from high-speed image data capture, through processing and analysis, to real-time playback at sustained performance levels. Ciprico solutions use industry standard protocols to interface with all open architecture computing platforms.

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Houston, TX 77024

DLTtape
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Milpitas, CA 95035
www.dlttape.com
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EDS Intelligent Storage Services provides an on-demand Liquid Storage™ solution with unmatched security, scalability, and availability. These state-of-the-art services dynamically adapt to a client's ever-changing information needs, allowing information to work for the client, rather than the client working for their information, while minimizing capital expenditure. *(SD/S, SM, DM, SRM, OSM, S)*

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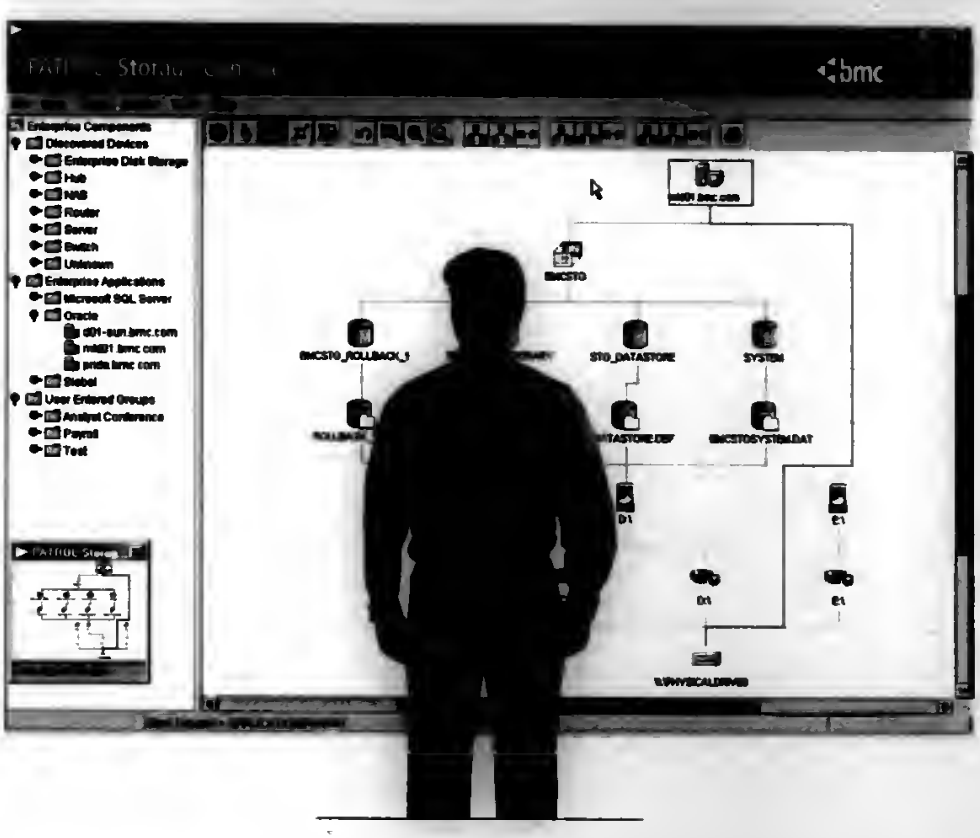

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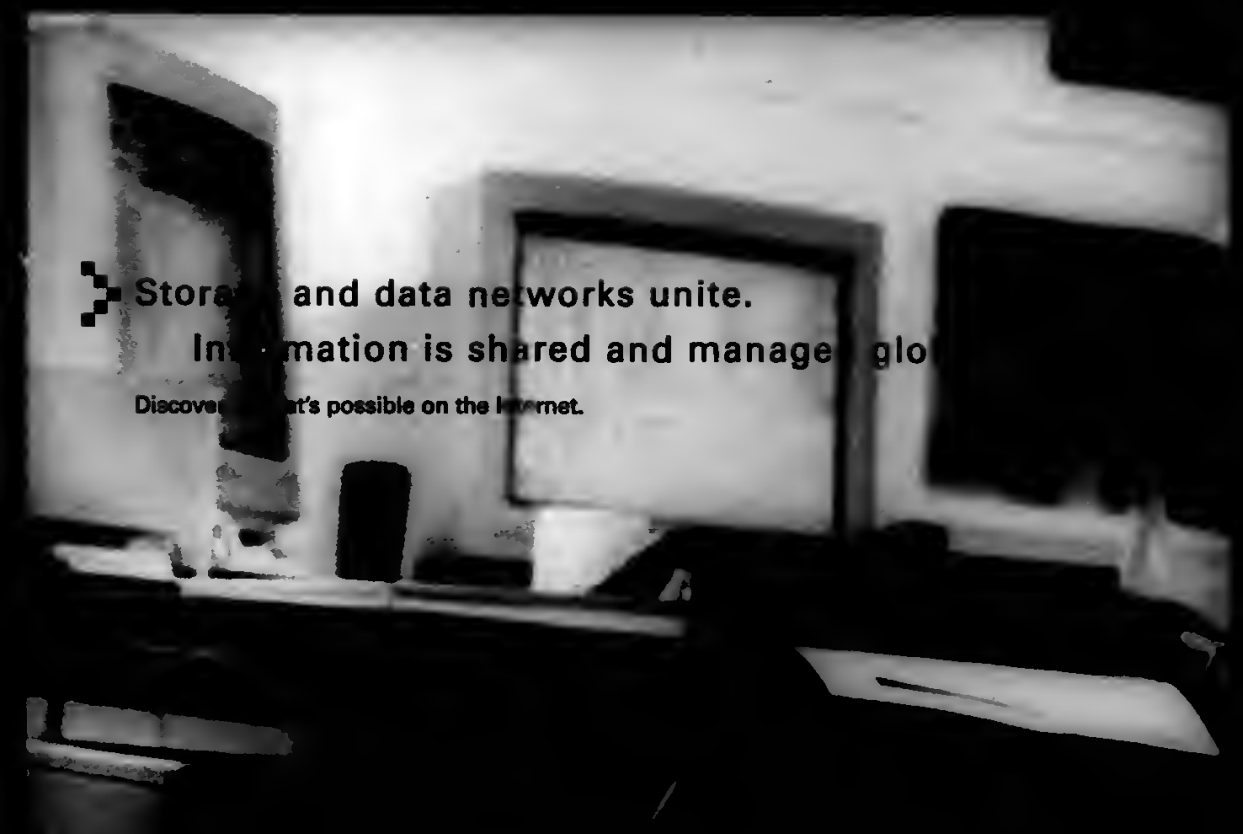

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www.spinnakernet.com
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Ray Herma, Vice President, Sales
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Storage Area Networks Inc. *
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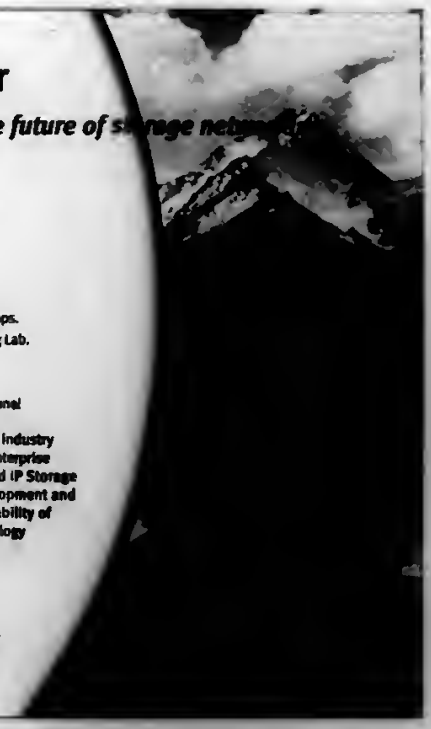

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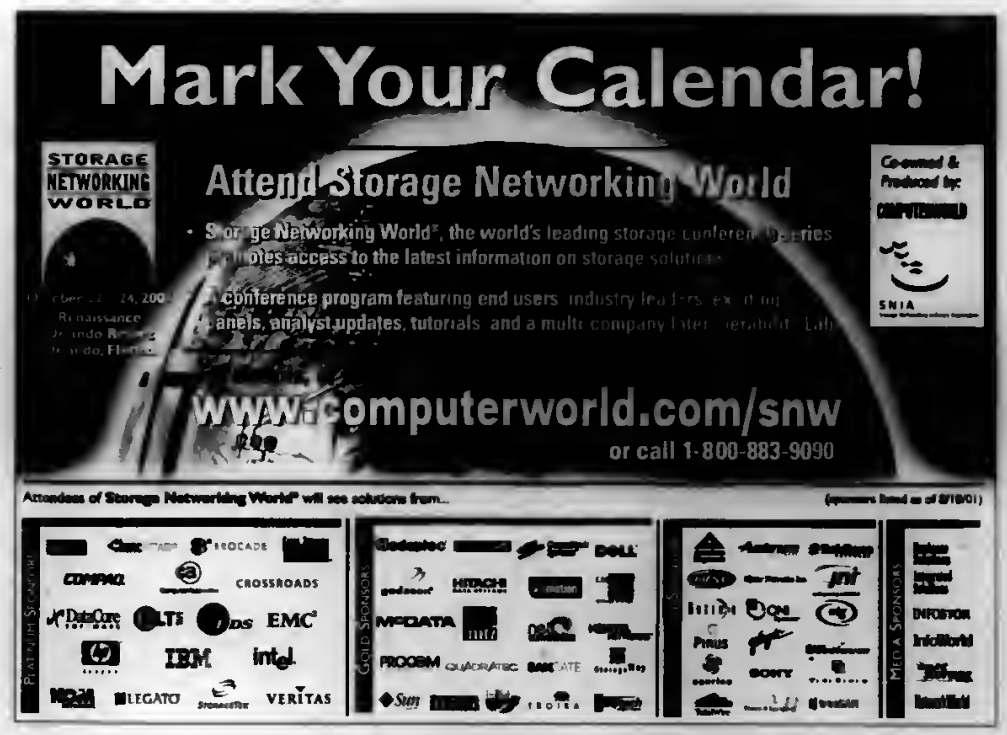

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TeraCloud provides SRM solutions to help Fortune 1000 companies discover, monitor, analyze, report, and centrally manage mission-critical files and enterprise-wide storage devices. TeraCloud's software is interoperable with any platform, including Windows NT, Windows 2000, UNIX, Linux and OS/390 operating systems; as well as SAN and NAS storage topologies. Current customers include companies like ADP, Chase Manhattan Bank, IBM Global Services and Metropolitan Life Insurance. *(DM, SRM, S)*

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Xyratex is a network infrastructure technology leader in developing OEM solutions for the data storage, high-speed networking and digital broadcasting marketplaces. Xyratex's portfolio includes: future-ready storage systems, advanced measurement and test systems, Fibre Channel analysis tools and network management technology for data communications, enterprise networks and digital broadcasting applications.

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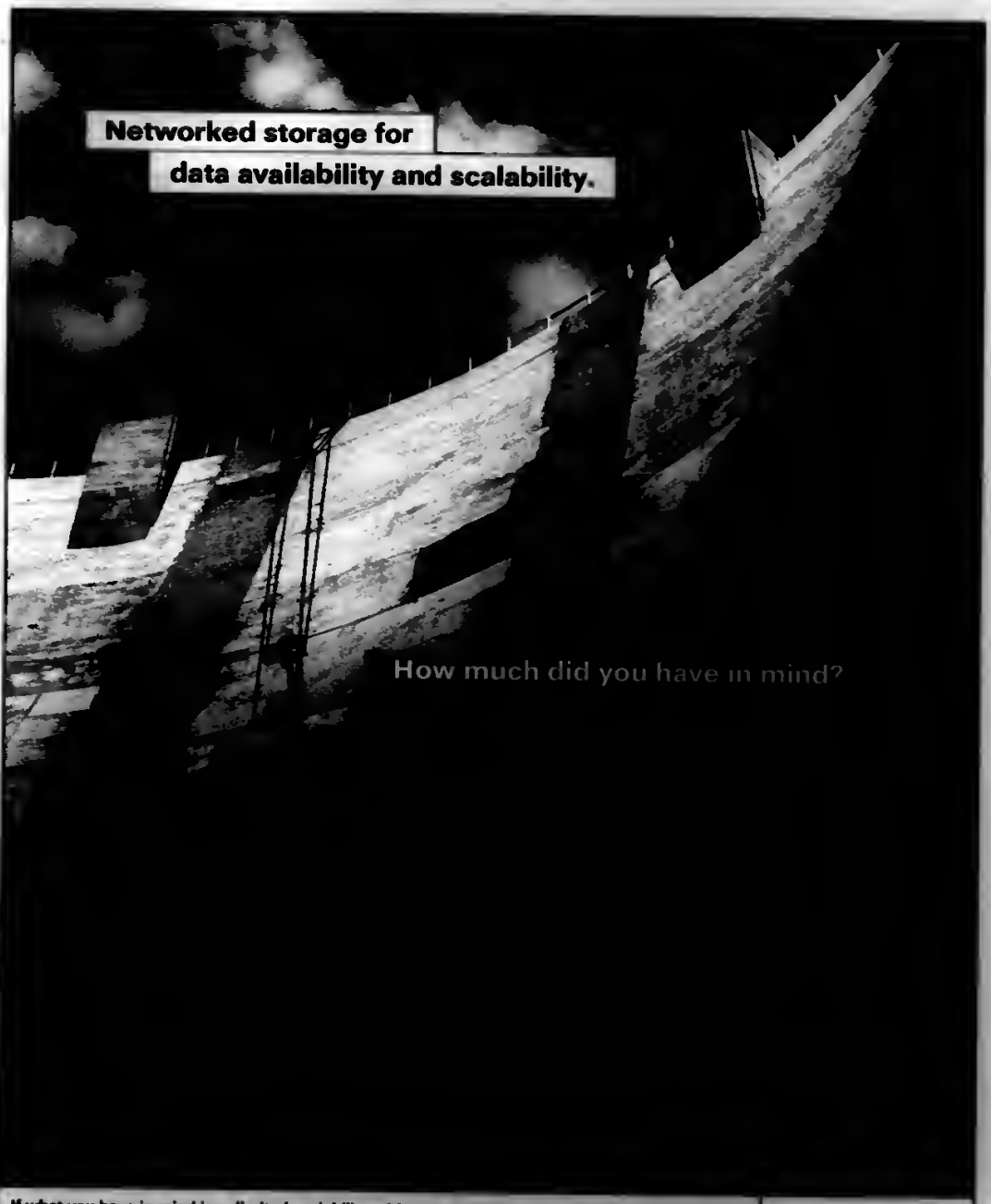

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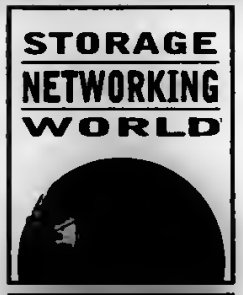

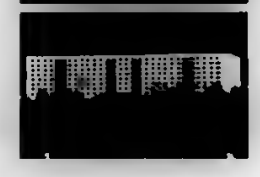

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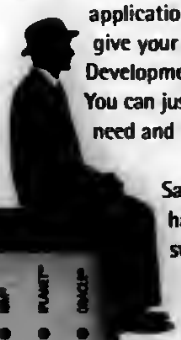

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Cancer Facility Looks to Beef Up Wireless LAN Security

New dynamic encryption-key technology planned for installation in pilot project

BY BOB BREWIN

A CANCER treatment and research center affiliated with the University of Texas is trying to beef up security for a wireless LAN pilot project by installing technology that lets users rapidly change encryption keys to block hackers from accessing private data.

But Clyde Miner, MIS manager of technical services at the M.D. Anderson Cancer Center, said the Houston-based facility is still "proceeding cautiously" because of data security concerns related to the Wired Equivalent Protocol (WEP) built into standard 802.11b wireless LANs.

The dynamic encryption-key management technology developed by Cisco Systems Inc. should "offer a near-term solution to security issues," Miner said. But, he added, other WEP issues have to be addressed during the two-year period before companies are required to comply with the strict privacy mandates of the federal Health Insurance Portability and Accountability Act (HIPAA).

Technical papers published this summer by security researchers pointed out that the static encryption keys now used by WEP are vulnerable to over-the-air sniffing by hackers. Cisco's technology is meant to mitigate that threat to Anderson, Miner said.

Cristine Falsetti, director of marketing for wireless networking at Cisco, said dynamic key management would let Anderson change the encryption keys used on its wireless LANs "as often as every three minutes, if that's what they want."

The pilot network is designed to serve seven physicians as well as ancillary personnel in Anderson's Breast Center and would be used for bedside data entry and decision-support activities, according to Miner.

If the Breast Center pilot is successful and the added security from Cisco's technology addresses the deficiencies of WEP, he said, Anderson plans to start deploying wireless LANs throughout its facilities in connection with an electronic medical records project.

Miner estimated that the wireless LANs could have an estimated base of 6,000 users out of the cancer center's current employee population of 11,000 people. He also said the LANs could provide service to an area of about 3 million square feet.

Jody Patilla, an analyst at data security consulting firm Metases in Cornelius, N.C., said adding layers of protection to WEP makes sense in medical environments because the protocol doesn't meet HIPAA security requirements.

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Corporate Users Urged to Assess IT Security Readiness

ISS co-founder sees need for constant monitoring

Christopher Klaus is co-founder and chief technology officer at Internet Security Systems Inc., an Atlanta-based security software and services vendor. Klaus recently spoke with *Computerworld*'s Dan Vertoo about the IT security issues corporate users are facing.

Q: What does the security threat landscape look like in the aftermath of the attacks generated this summer by the Code Red worms?

A: The industry is a little more aware of the threat. [But] I think we still see a dramatic need for companies to assess their current security standing and put in systems that provide 24/7 security monitoring. Most companies still lack a network burglar-alarm system.

Q: Is there anything that businesses should be doing today that maybe wasn't on their radar screens a year ago?

A: Security assessments and penetration testing are just starting to explode. Most companies didn't realize that they needed to do an assessment. More and more people are [now] realizing that it's like your car: Every 2,000 miles, you get a checkup.

We're also having to go higher in the organization to get approvals [for new installations]. After doing an assessment, we're being brought in to the board level to give them our findings and recommendations. If you can get high-level management buy-in, it becomes much easier to do an enterprise deployment.

KLAUS: Most users lack network alarm systems.

Corporations are also starting to put personal desktop protection systems in place. The problem with personal firewalls is that most of them are not centrally managed. Central management is key. If you leave it up to the user, some of them might get it right but some of them may not.

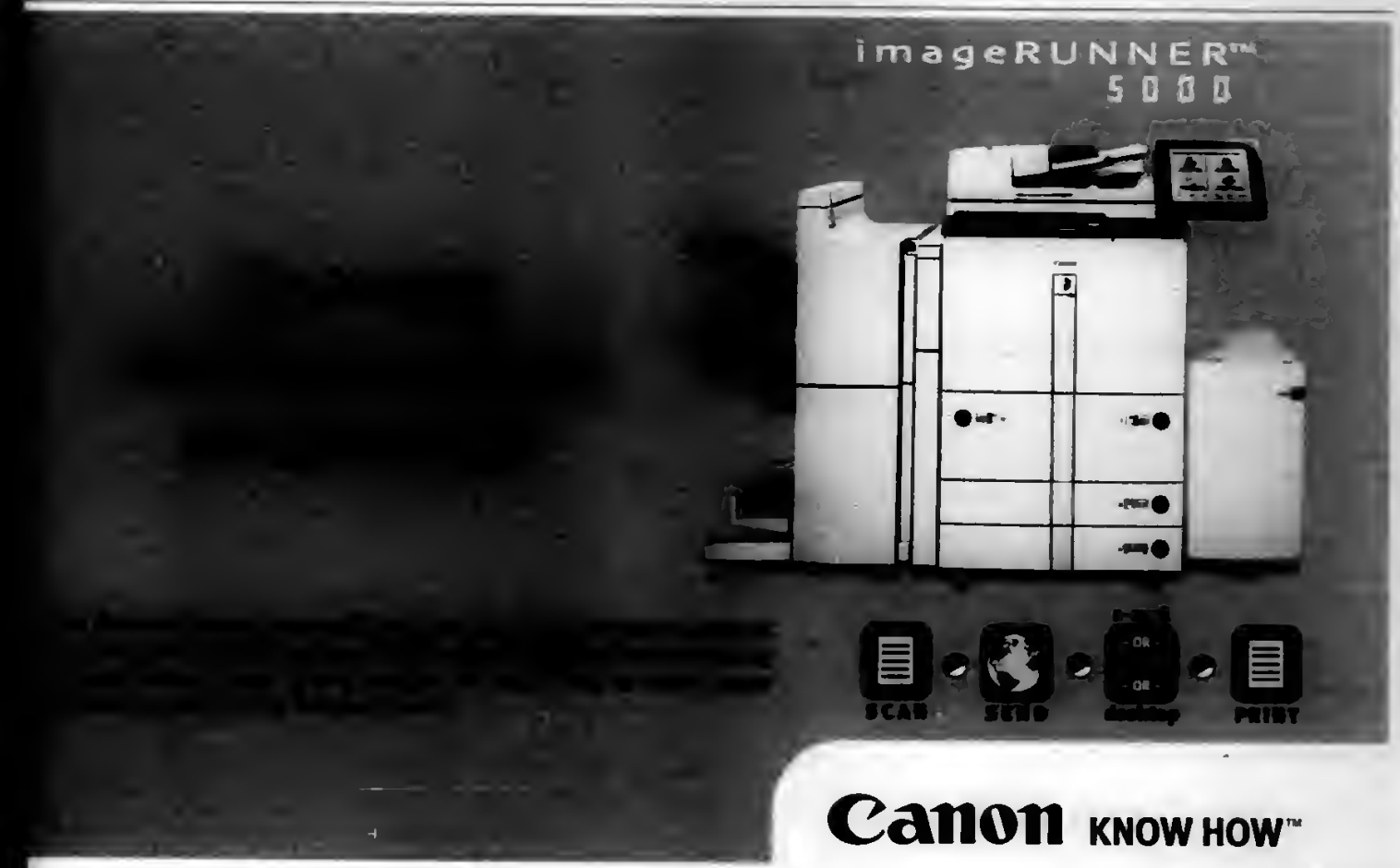
Q: What are the top security concerns that you have, as far as your clients are concerned? What keeps you up at night?

A: The thing that keeps me up is the fact that every new vulnerability gets posted on the Internet. [It's] especially problematic when somebody posts the exploit kit [with instructions for taking advantage of a security hole]. What's even worse is [an attacker] taking that exploit and bolting it into a worm body, like the Code Red worm. We're tracking more than 100 [worms] that get discovered every month, [plus] widescale proliferation of back doors and mass exploitation of computer systems.

Q: What does the next year hold for the world of network and information security?

A: One of the key areas will be wireless technology. Next year, we're going to see mainstream companies adopting wireless and 802.11a [technologies].

We've done some testing around Atlanta and found more than 80 [wireless] access points, and only two of them had encryption turned on. What wireless represents basically is a back door around all of the firewalls [that companies] put in place.



BRIEFS

McData to Buy SAN Software Unit

Broomfield, Colo.-based vendor McData Corp. agreed to buy the assets of Western Digital Corp.'s storage-area network (SAN) management software unit for $29.75 million. The purchase of the San Jose-based unit, SANavigator Inc., from Lake Forest, Calif.-based Western Digital is due to be completed this month, the companies said.

Gadzoox Gets $7.5M Through Stock Sale

Gadzoox Networks Inc., a San Jose-based vendor of SAN technology, said it raised $7.5 million through the sale of stock to two investment firms. The company said the money will be used to bankroll the launch of its new line of 2G bit/sec. SAN switches and fund future product development.

Voice-Over-IP Vendor Examining Revenue

Claront Corp., a developer of voice-over-IP technology, disclosed that the $124.3 million in revenue it reported for the first half of this year may have been "materially overstated." The Redwood City, Calif.-based firm said its directors have placed three executives on administrative leave and set up a committee to investigate "a number of transactions." Claront also warned that its revenue for the rest of this year will likely be much lower than expected.

Short Takes

Beleaguered LUCENT TECHNOLOGIES INC. in Murray Hill, N.J., said it completed a deal to sell two of its U.S. manufacturing plants to Toronto-based contract manufacturer CELESTICA INC. for $570 million. . . . NETOBJECTS INC., a Redwood City, Calif.-based developer of Web site design tools that's partially owned by IBM, shut down and announced plans to sell its assets.

CEO Steps Down at Web Hosting Company

Hancock resigns as executive shake-up continues at Exodus in faltering economy

BY TODD R. WEISS

THE REVOLVING door cootinues to turn at struggling Web hosting firm Exodus Communications Inc., with Chairwoman and CEO Ellen Hancock last week joining a long list of top executives who have left the company this year.

Santa Clara, Calif.-based Exodus said Hancock has resigned after serving as CEO for the past three years. Sbe's being replaced by L. William Krause, a former chairman of 3Com Corp. who now heads an investment firm. Krause has been a member of the Exodus board since the middle of last year.

BETH A. KEISER/AP

HANCOCK'S exit may hint of further changes at Exodus.

Hancock's departure came just two weeks after three outside board members tendered their own resignations. It also followed two recent layoffs and a May management shakeup that resulted in the exit of Don Casey, the company's president and chief operating officer, and the resignations of Exodus' chief financial officer and top marketing executive.

Hancock, who previously worked at IBM and Apple Computer Inc., joined Exodus in March 1998 as president and was promoted to CEO six months later.

But Exodus has been hit with myriad financial problems this year as a result of the tightening economy's impact on IT spending.

In July, the company reported a second-quarter loss of $583.4 million, compared with a loss of $51.8 million for the same period a year ago, and annouoced that it was laying off about 500 of its 3,500 workers. That move was preceded by a cutback of 675 employees in late May in the wake of a $649.6 million net loss in the first quarter.

When the second-quarter oumbers were released, Hancock said Exodus was moving to cut costs. But she added that the company didn't expect to achieve "free cash flow" until next year's third quarter.

The announcement of Hancock's resignation indicated that even more internal changes are likely. "The focus now is to implemeot an operating plan that reflects the realities of a tough economic environment," said Krause in a statement last week. Hancock couldn't be reached for comment.

Greg Gieber, an analyst at A.G. Edwards & Sons Inc. in St. Louis, said the continuing parade of departing executives is evidence that Exodus' fight to right itself isn't over yet.

Hancock "was very aggressive and originally a very successful marketer," Gieber said. "Now you need somebody to save what could be a company on the critical list."

Riyad Said, an analyst at Friedman, Billings, Ramsey Group Inc. in Arlington, Va., said Exodus had to respond to the shrinking of its core Web hosting business. Ultimately, he added, "the buck stops with senior management, irrespective of what's going on in the greater economy."

Another analyst, who asked not to be named, said he sees Hancock's resignation as "the other shoe dropping after the board reshuffling" last month. "The question is, Where will it end?"

- Three top executives, including the company's COO and CFO, resigned in May.
- Three members of the Exodus board gave up their seats last month.
- Ellen Hancock resigned as chairwoman and CEO last week.

EBay Plans to Build Trading System Around WebSphere

BY TODD R. WEISS

Online auction Web site eBay Inc. last week said it has outgrown its homegrown transaction management applications and will replace them by next year with IBM's WebSphere applicatioo server software.

As part of the deal, San Josebased eBay plans to use WebSpbere as the technical underpinning of a new trading system referred to internally as V3. EBay said WebSphere will manage the listings of items offered for sale on its Web site, as well as the bidding process.

The WebSphere technology should be more scalable, flexible and reliable than eBay's current proprietary software, said an eBay spokesman.

The deal includes an agreement for IBM to sell more of its products through the eBay site. Such agreements are becoming more common between technology vendors and e-commerce companies. For example, Compaq Computer Corp. made similar pledges as part of separate technology contracts that it signed with Sunnyvale, Calif.-based Yahoo Inc. early this year and with The Walt Disney Co.'s North Hollywood, Calif.-based Internet unit last fall.

Chuck Geiger, vice president of technology strategy at eBay, said during a conference call that the new trading system will be based on a three-tier architecture, with WebSphere-equipped computers sitting between the company's existing levels of servers.

EBay currently uses a mix of Windows-based servers from Compaq and Unix systems from Sun Microsystems Inc. Geiger said executives haven't decided which hardware will ruo the WebSphere software. But, be added, eBay will continue to rely on machines from hoth Compaq and Sun as part of the new trading system.

No price tag was disclosed for the project, which is due to start later this year and be completed by early next year.

The eBay spokesman said the company's own software "would have had to be reinvented" to keep pace with expected business growth.

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MARYFRAN JOHNSON

Man the Merger Lifeboats

AS THE RIVER OF VERBIAGE about the proposed Hewlett-Packard/Compaq merger flowed across the media last week, everybody floating past had a role to play. The CEOs gamely touted "synergy" and the dubious benefits of uniting two struggling companies. Industry analysts mused about layoffs and product-line consolidations. Wall Street types watched the stock prices sink.

But what did you, the enterprise customers, get to do? Watch helplessly. Wonder whom to believe. Wish you knew what was really going on. Look around for lifeboats.

MARYFRAN JOHNSON is editor in chief of *Computerworld*. You can contact her at maryfran_johnson@computerworld.com.

In some cases, you turned to your colleagues in online communities to swap information and advice. Within 48 hours of the HP/Compaq bombshell, we had 14 forums with dozens of active postings in our *Computerworld.com* communities. Overall, the feeling was pessimistic. Frustration ran rampant with the failed business strategies that brought HP and Compaq to this drastic pass. "The bottom line is that one troubled company buying another troubled company simply makes one bigger troubled company," wrote one user. "You can't 'acquire' your fundamental business challenges away."

You also can't keep your top customers in the dark, which is, unfortunately, what happens in the early stages of these megamerger deals. Only one week ago, we ran a front-page story about Sabre Holdings Corp.'s $100 million project to replace its legacy mainframe systems with Compaq's NonStop Himalaya servers. Nasty surprise, this sudden acquisition.

A Sabre spokeswoman last week said the merger shouldn't affect those plans, but "we'll have to have some further conversations" with Compaq, she added. I'd bet that a few hundred other major customers who just signed big checks with HP or Compaq also want to have "further conversations."

Should this merger go through, any move to drop product lines is at least a year away. But if you're a large customer with a mission-critical stake in either company's technologies, this kind of uncertainty can be more than unnerving. It can delay or even derail IT plans.

Yet when we polled senior IT managers in our online Executive Suite on this issue last week, there was a glint of optimism. With blue-chip firms like these, they expect migration paths from dead-end products to ones with longer lives. HP had better make that happen.

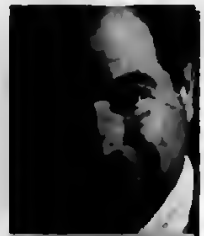
PIMM FOX

Web Services Can Help Put Squeeze on Costs

DON'T FIGHT REALITY. While purveyors of Web services paint a picture in which companies generate new revenue by connecting with new customers, fresh research from Jupiter Media Metrix debunks that scenario.

Jupiter claims that just 16% of companies surveyed would use Web services technology to collaborate with new business partners next year.

Instead, 60% said they would use Web services technology for enterprise application integration (EAI), and 53% said they would use it to integrate their applications with those of their partners and customers.



PIMM FOX is *Computerworld*'s West Coast bureau chief. Contact him at pimm_fox@computerworld.com.

In other words, companies will use Web services to cut costs rather than prospect for new marketplaces.

"Web services is not about a new business model," says David Schatsky, Jupiter's research director. "It is about saving money on integration, on both sides of the firewall."

The reasons Web services can make this happen are the general availability of the Internet and industry adoption of Web services standards.

A good place to begin using Web services for EAI behind the firewall is CRM, which still has a captive audience. Executives are receptive to integration efforts that give them a more holistic view of customer behavior and requirements. They're willing to spend money to get this information. And the cost of getting their feet wet with Web services isn't high.

Many tools and products take advantage of Web services standards, and most application service vendors are rolling out Web services-enabled versions of their products. In addition, there are freeware products, such as open-source directories for UDDI, a Web services standard.

The adoption of Web services will also cut IT training costs and reduce the price for services EAI vendors provide. Development costs will also be lower because it will be possible to use the same technology for internal and external inte-

Quick Link: For more *Computerworld* columnists and links to archives of previous columns, head to: www.computerworld.com/q?q1000

gration. More cost reductions are possible because it will be easier for companies to assemble best-of-breed componeots rather than purchase an applications suite from one vendor.

With Web services architecture and integration, you can use components from a variety of vendors. Yes, managing multiple vendors could cost money and time, but having more vendors in the mix will mean more choice at lower prices, and the savings will outweigh the costs.

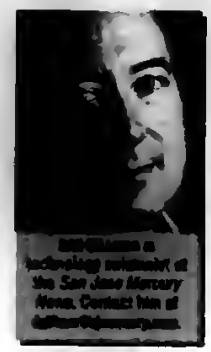
One caveat: Security for Web services isn't satisfactory for industries that must abide by government mandates. But for less-sensitive industries, Web services offer cost savings and integratioo benefits. That should he enough to tackle without the challenge of adding oew customers.

DAN GILLMOR

Valley Will Rise Again, But Not Like in Late '90s

IT'S BEGINNING TO DAWN on folks in Silicon Valley that the speculative boom of the late 1990s is really over. Hardly a day goes by without another spate of bad news from large and small technology companies alike, and even the inflationary housing market — always a trailing indicator — shows signs of returning to rationality.

Just as the optimism was loony in its overkill at the height of the boom, however, some of the fear and loathing we're seeing today may also he a bit excessive. The Valley's economy was never as strong as it seemed then, and it's probably oot as weak as it seems now. Yet there's reasoo to believe that the world's high-tech epiceoter is at something of a turning point.



Dan Gillmor is technology columnist at the San Jose Mercury News. Contact him at dgillmor@sjmn.com.

Many longtime residents say they've never seen a pullback in demand to match the current one. Week after week, earnings and revenue estimates get cut by some of the industry's most important players, and the companies supplying the hardware and software and the tools to make it all are bearing much of the brunt.

The venture capital community, which grew fat and happy when it could turn almost any investment into a winner, is retrenching in a dramatic way. Where absurd ideas once easily drew competing terms sheets, now even the best ideas take some selling. That's life — and capitalism, where excess tends to go in both directions.

I'm writing this from Singapore, where a recession has hit, people are worried and the U.S. economy has inordinate impact. I just interviewed the head of the island natioo's biomedical sciences initiative, an ambitious program he sees as a foundation to the knowledge-based economy of tomorrow. Like everyone else I encounter these days, he wondered wheo or if Silicoo Valley would he healthy again. If we're lucky, I reply, it will never he as healthy as it was during the late '90s. That bubble was more than an ecooomic distortion; it inflated expectations, too.

So even if the Valley isn't going to return to those unsustainable beights, it retains all of the attributes that helped it rise in the first place. It still has lots of talented people, great universities, capital and an infrastructure that lets entrepreneurs put together companies quickly.

Moreover, people are getting back to rational behavior. The greediest are leaving. Good riddance, I say, and thanks for belping ease (if slightly) some of the traffic jams.

I recently visited a tiny start-up in Mountain View, just a couple of blocks from the first offices of Netscape, the company that did the first famously excessive IPO. This start-up was in borrowed offices. The furniture and computers were scavenged from failed dot-coms. The people were smart. They may oot turn their ideas into a business, but they're trying to build something that will survive longer than a year or two — the too-common time frame of bubble companies.

There's good news and bad news in all of this for IT buyers. Unless it's dealing with a monopoly, IT can expect more realistic contract terms.

The sellers are also in an environment today where they must have a rational business plan, as in charging a fair price for products and services rendered. Rationality prevails? What a concept.

READERS' LETTERS

Networking Schools

I THINK ARIZONA got taken ["Massive ASP Deal 'Unprecedented,'" Page One, Aug. 27]. I wonder how much it would have cost to give the state's 850,000 students CDs with Mandrake 8.0 or Red Hat 7.1 on them.

Charles J. Lingo
Denham Springs, La.
clingo@i-55.com

I WAS STRUCK by the statement that schools "often don't have the technical resources ... to troubleshoot software applications locally." Am I misunderstanding something? Why should software applications delivered by an ASP be any less troublesome than those same applications resident on the PC? It seems to me that any difference in problems would come from adding the network. Overall, while I agree that this contract is "unprecedented" and "revolutionary," I fail to see anything in it that justifies the triumphant tone of the article, except for Microsoft's and Cox Business Services' viewpoints. They've definitely scored a coup, but at the expense of the public interest.

Calvin Crumrine
Juneau, Alaska

Web Services' Future

WILLIAM M. ULRICH's euphoric prediction that "Web services will have as profound an impact on information management as the assembly line had on the auto industry" is similar to the optimistic predictions made for many other technologies and architectures ["Plan for Transition to Web Services," News Opinion, Aug. 20]. And it shares the same two primary weaknesses, cost and human nature. Cost: Legacy systems may be just a roadblock to Ulrich, but they're the life-support systems for their owners. The cost/benefit ratio argues against wholesale replacement of these "relics." Human nature: Humankind is competitive and territorial. How many data warehouses have turned into data marts because of internal resistance from managers and IT staff alike? Altruism is rare. Web-based component reuse is exciting, but it will end neither world hunger nor tried-and-true methodologies. Like client/server, it will take its place as a valued member of the IT family.

John Pittaway
Santa Ana, Calif.

Sun Passing Blame

I THINK SUN dropped the ball ["Sun Lashes Out at Microsoft for Javaless Windows XP," News, Aug. 27]. Instead of lobbying developers and manufacturers, Sun should have realized that talking to Microsoft following the filing of its lawsuit could mean the fate of the programming platform it holds so dear. Sun had an opportunity to further the deployment of its product and it failed. Now it's angry and blaming Microsoft.

Peter Gnas
Network administrator
Milwaukee

Exclusive Security

SECURITY IS among my duties at a Fortune 500 company, and I'm becoming increasingly annoyed at all the e-business companies that refuse to run their software on anything but Microsoft's IIS ["Microsoft Warns of New Code Red Risk," News, Aug. 20]. Even worse, when asked whether they run on Apache, they claim that they've never heard of Apache and that we are the first to ever request this. They are very quick to state that their software is secure. Well, how can it be secure if it's running on an unsecure platform?

Eric R. Fairhurst
Indianapolis

More Letters, page 28

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. Internet: letters@computerworld.com. Include an address and phone number for immediate verification.

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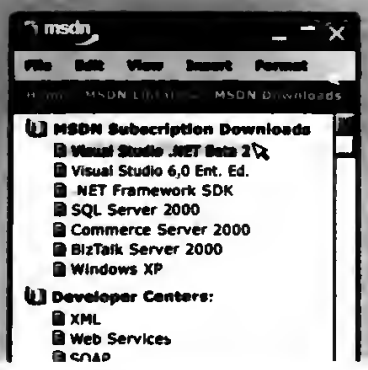
Hopelessly exaggerated claims such as "This product



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The Value of Assets

As I READ Paul A. Strassmann's column "Diet? What Diet?" [Business, Sept. 3], I had a nagging concern that perhaps his analysis missed something — like common sense. Strassmann asserts, "The percentage of total assets to revenue is a most telling indicator that will help CIOs validate the effectiveness of their IT projects." I thought it might be worthwhile to apply this analysis to a real-world situation: *Computerworld*. In the good old days, no one at *Computerworld* had a computer. Instead, you worked on typewriters and did paste-up. Not much investment in assets. Now, let's say management has to decide whether to equip the staff with computers (assets). If it applies the Strassmann test, no one will have computers. Perhaps it is a better world. Just think of the time you will save not reading e-mails or dealing with nasty viruses. It seems that Strassmann and *Computerworld* are really puzzled about finding a methodology to determine the value of computers. I would suggest you use the services of professionals who assess valuation on a daily basis: the traders on Wall Street. Strassmann should simply persuade a major corporation to announce that it will discard all of its computers. You will be astounded at how quickly Wall Street can measure the value that computers contribute to a modern business.

Ardy Hagen
Zensar Technologies
San Jose

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An AMD Fan Speaks Out

WHY ON EARTH would IBM drop AMD ["AMD Loses IBM as a PC Chip Customer," News, Aug. 20]? I won't buy a PC unless it has an AMD processor, and a lot of people agree with me. I build PCs, and I find that I don't have as many problems with AMD processors as I have with Intel's.

J. Lynn Buchanan
New Kent, Va.
jtbuchanan@earthlink.net

What About DBAs?

I'VE NOTICED that in the last couple of salary surveys, the job title *database administrator* hasn't been included ["More for the Money," Business, Sept. 3]. The *database manager* title could apply in smaller organizations, but database administrators generally aren't managers. And *database analyst* sounds more like a programming position not involved with support issues. The lack of the *database administrator* title is made even more confusing when the article says that "database administrator salaries should rise 9% next year." That sounds good, but 9% of what?

Wesley S. Pierz
Database administrator
National Marrow Donor Program
Minneapolis

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THIS WEEK

THE WEAKEST LINK

Business process improvements and increased automation can help manufacturers and other companies manage their supply chains more effectively. But too often, supply chain strategies veer off course as executives get sidetracked by quarterly earnings objectives, according to participants in a *Computerworld/ebizChronicle.com* roundtable. **PAGE 32**

UNCLUTTERING THE COCKPIT

Commercial airline pilots have historically been dogged by mounds of paperwork, including instruction manuals that can weigh 70 pounds or more. But now, pioneers like Boeing and JetBlue are equipping their aviators with laptops to help them navigate the skies more effectively. **PAGE 37**

THE RATIONALE FOR CERTIFICATIONS

IT workers who earn a technical certification go "above and beyond" the call of duty, says Carnival Cruise Lines' Ken Eberhardt (left). But critics insist that certifications prove only that an employee is book smart. **PAGE 38**

JOE AUER/DRIVING THE DEAL

Manage the Contract

LET'S LOOK AT ANOTHER of the truths of technology deal-making that can help you wind up with the best possible terms. The goal is not only to negotiate a great deal, but also to ensure that what you negotiated is what you get when the ink is dry. Contract management is essential, even critical, in pulling this off.

Your're wasting your time negotiating with a vendor if you don't plan on assertively managing the contract and the relationship. If you don't focus on the ongoing vendor-management process, you'll have rights that go unrealized and get waived, because, as lawyers tell us, "rights that aren't assertively enforced can end up being waived by the courts." You'll have people in your organization who aren't even aware of the specific results the vendor is obligated to produce, so you won't get what you're paying for, and you'll have endlessly unpleasant surprises.

Some say, "I'll be so glad when we've finished negotiating this contract. I never want to see it again." And in many cases, that contract *is* never seen again. In fact, sometimes the contract can't even be found when it's needed.

Experience has taught us that contract management begins during contract development and negotiations. That's when you build in the metrics and the hooks and handles for effective relationship management. That's when you need to decide how you're going to manage the vendor.

You should think beyond just closing the deal; you have to anticipate the whole relationship and how to manage it.

There are three high-level objectives when you manage a contract: **vendor compliance, customer compliance** and **evidence of the status of each**. Let's look at a few things that go a long way to ensuring that what's supposed to happen really happens.

For instance, some suggest, "How about a deal summary for the end users once the contract is completed?" That's a great idea, but you need more than a written summary. Not everyone learns well through reading. And not everyone will even take the time to read the summary. So **hold briefing sessions**. Present the end users their rights and obligations and say, "You're on the front line, the first tier of relationship management. Here are the service levels and how we monitor compliance." Let them know how to determine specific performance deficiencies and log their occurrences, how and when to report them and which manager to report them to. Educating and interacting with people on what the contract says and on their roles are necessary parts of a cootract management process.

At a recent seminar, the asset manager of a major insurance company stated that his contract management group regularly saves his organization more than $300,000 a month. A manager with one of the country's leading telecommunications suppliers asserted that her department's contract management team is responsible for monthly savings of more than $1 million. Both attributed their success to the fact that they *assertively manage* the contracts and vendor payments within their authority. They both find most of the savings by carefully monitoring vendor invoices against contract terms and conditions (like caps on price increases).

Overall vendor relationship management is a topic for another day. But some major organizations are beginning to include "relationship" specifications, along with a host of initiatives that encourage and monitor contract compliance, in their requests for proposals, terms and conditions, and statements of work.

Incidentally, do you know why we're not good at cootract management? Because the IT industry grew up on vendor form contracts, so we never got experience managing contracts. There's nothing for a customer to manage in a vendor form contract because it doesn't say the vendor is obligated to do *anything*.

But when you negotiate contracts full of specific vendor obligations, it's more than necessary to be ready to manage the vendor's compliance in completing the tasks in a contract.

Joe Auer is president of International Computer Negotiations Inc. (www.doebetterdeals.com), a Winter Park, Fla., consultancy that educates users on high-tech procurement. ICN sponsors CAUCUS: The Association of High Tech Acquisition Professionals. Contact him at joe@doebetterdeals.com.

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JOE AUER is president of International Computer Negotiations Inc. (*www.dobetterdeals.com*), a Winter Park, Fla., consultancy that educates users on high-tech procurement. ICN sponsors CAUCUS: The Association of High Tech Acquisition Professionals. Contact him at **joea@dobetterdeals.com**.

SUPPLY CHAIN DEMANDS

COMPANIES ARE IN A FIGHT EVERY day. They have to respond quickly to changing business demands that are outstripping the ability of supply chain management technologies to keep up.

So says Robert Betts, a senior vice president and global supply chain executive at SAP Labs Inc. in Atlanta. Betts and two other industry executives — Craig R. Jett, e-marketplace marketing manager of the B2B Solutions unit at IBM in Yardley, Pa., and Kevin O'Marah, service director for the supply chain strategies service at AMR Research Inc. in Boston — recently participated in a *Computerworld/ebizChronicle.com* roundtable to discuss key supply chain management challenges that managers across a wide swath of industries are facing.

The roundtable was moderated by *Computerworld*'s Thomas Hoffman and *ebizChronicle.com* publisher Sarwar A. Kashmeri.

Kashmeri: **What are the key privacy and security issues surrounding supply chain management?**

Jett: As you look across supply chains and what companies are doing, obviously they are becoming highly collaborative. You're talking about how you share data across companies. I think a lot of companies are dealing with those issues today and trying to determine what is the right kind of data that [you] can share without selling the farm, not giving up what's core to your business.

O'Marah: There are a few really big issues. Intellectual property — what do I own patentwise? What do I own designwise? What core competencies have I built myself? What about regulatioo? How much responsibility do you have for what you've sold out in the marketplace, sucb as Firestooe tires or meat with E. coli?

Those kinds of things are the responsibility of the brand owner who ultimately took the money, and as the security and privacy concerns grow out, that becomes a longer-lasting threat to your stability.

I don't think people are clear about whether sharing design data is a good idea. They know they need to get connected, but they are not clear which one of these little pieces of data that they should share or make available to a supposedly password-protected component on an exchange or private trading exchange and how dangerous it is out there.

Betts: There's a bigger questioo here that we're not talking about: privacy. Right now, there is technology that basically tracks every movement that we make, whether you go to the gas pump and wave your little ticket, go to Kroger's [grocery store] and put your little card on the scanner. All of that identifies you, and we have this electronic shadow that follows us around.

In Georgia, they actually put our thumbprints oo the back of our driver's license. It's a three-dimensional bar code. I refused to get my driver's license for three years because I consider that an invasioo of privacy. If anyone got that thumbprint, I have oo way to do anything else. I can't change my thumbprint.

I'm very uncomfortable with this, and I think we've got a lot of work to do about privacy — what gets known, what does not get known from the individual and then what goes into the networks.

So the questioo is, where does the electronic shadow become a utility vs. an enemy?

Kashmeri: **How do you advise senior managers as they implement these supply chains across countries?**

Jett: CEOs we speak to are worried about what information they can and cannot share. At IBM, we look at what we've done within our internal supply chain and the information that we share with our partners and all the outsourcing that we do from a manufacturing standpoint, which is pretty signifi-

PHOTOS BY CHERRY KIM

Forget about public and private e-marketplaces. Organizational, data quality and privacy issues continue to reign as the top challenges facing supply chain managers. By Thomas Hoffman and Sarwar A. Kashmeri

cant. What information is shared varies so drastically by company, industry and geography. Look at consumer packaged goods and retail. Four years ago, in Europe, *collaboration* was a dirty word in that industry. You didn't talk about collaboration. The sentiment there was, "There is no reason why a retailer should know what kind of costs I have going into my products."

That type of thinking has changed pretty significantly in the past three to four years.

O'Marah: From our clients' perspective, they have an implementation problem. If they can't count on their people within the supply chain — truck drivers, dock workers, order entry clerks, home workers — to do what they need them to do, then the system will break down. And people don't like to be followed around. So anything we do philosophically with connecting functional applications, databases [or] business processes will break when people getting paid by the hour refuse to do what you think they're going to do. Then the data will be corrupted, and the whole database will be of no use.

Hoffman: What are the key challenges managers are facing in running their supply chains effectively?

Betts: They struggle. They're in a fight every day. And the fight they're in is that the businesses are changing and are adapting much faster than the technology. Frankly, it's outstripping the technology's capability to keep up. I hear that constantly, and it comes out in different ways: "I can't add this company fast enough to my software," or, "It takes me six months to integrate this other company," or, "It took me eight weeks to bring on this warehouse."

Secondly, the need for better-quality information that's more readily available is key. And you can't do that unless all the facilities are connected.

Hoffman: Are there any companies that are doing this effectively?

Betts: There are a couple that have done a very good job. One of the things they've done is look for repetitive processes that can be replicated. So instead of trying to come up with a different process for, say, material tracking, they'll come up with a single process and simply copy it across their divisions as much as possible.

For larger companies like GE and others that are highly diversified across multiple industries, it's a little more difficult. But when you have a single, large company in a primary industry, that seems to be the easiest way to go.

Jett: A trend that we're seeing is that companies aren't looking to boil the ocean like they were a year or two ago. They're really looking at where their specific pain points are, looking through the microscope and saying, "This is where we see a lot of repetitive processes." They're also looking at where they can automate and make a more fluid process and also try to gain some efficiencies.

O'Marah: The challenges we see our clients running into come in the following order:
Organizational: People don't want to do it; someone won't step up and own it — "Too risky, so I don't want it on my particular comp plan."
Data quality: Where is it? How much is there? Can I get it? Can I see it? Is it going to be transaction quality? Those types of questions.

The response to these issues is, "Baby steps work; big bangs don't."

You get over the data-quality issues by keeping the scope narrow, and you get over the organizational issues by finding someone who's actually got the guts and tapping him on the shoulder with your sword, like you're King Arthur, [and saying], "Go forth and conquer," and that person can be a hero.

Kashmeri: So is part of the problem that businesses are expected to move at cyberspeed?

Jett: Definitely. I just wish on a Friday I could have three hours to sit and think. Everybody wishes they could do that. And I think that's the nature of this problem: having the ability to really sit down and think through some of these processes. I think that's really what customers need to do.

Betts: Personally, I think it traces back to the financial markets. Everybody is responding to the quarterly analyst call. And really, that's a big problem, because we just talked about things that have to do

Supply Chain, page 36

Moderators

Sarwar A. Kashmeri, publisher of *eBizChronicle.com*

Thomas Hoffman, *Computerworld*'s business editor

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SUPPLY CHAIN DEMANDS

Continued from page 33

with rolling out the technology or rolling out the organizational change.

Those things take time. If you're trying to respond to the quarterly financial requirements of Wall Street, you're going to end up shooting for that.

Betts: Later this week, I'm going to go talk to a board, a CEO, about this exact question, and what I've got to explain to this board is [that] basically, this company is being squeezed from both ends. Our friends [on Wall Street] expect this company to go from generating 3.5% of revenues into profit to 15%. This is a big jump. And this company is 135 years old. This isn't going to happen overnight.

First, you've got one battle front, where you must begin to compress the operation. You cannot continue to have multiple operations doing the same thing. And they've done that . . . because they can't compress the systems fast enough. They've bought five companies. You've got four different order processing systems.

Data processing systems, going back to the '50s and '60s, were primarily financial and accounting systems — what I call "bean-counting systems." Only in the last few years have they really been used for day-to-day operations data: taking orders, really accounting for things, doing hard inventories all the time. That's a very recent phenomenon. And as time gets compressed and these unrealistic expectations start to collide, we're in a very dangerous situation.

O'Marah: But there's something that's changed, and that's the Internet. Granted, the Internet has gotten a big black eye lately. The reality is, the Internet is a . . . platform for businesses to do things across their boundaries [and] puts a lot more people in front of the screen and a lot more control into the hands of decision-makers via the data they gather.

Hoffman: **What are some of the limitations of technology in addressing these supply chain challenges? Are there certain efficiencies that we have yet to reap?**

Betts: Let's talk about the organizational aspect for a minute. I think we have done a poor job, from the technology side, of helping companies measure and align measurements. We have manufacturing sites whose idea of measurement is "pump stuff out the door." Not good stuff, not [the] right stuff — just stuff. And they'll overrun schedules, they'll do whatever they have to do, because they're basing these measurements on units out the door.

Jett: We also need to get visibility and decision-making down into all workers' hands, and I think it ties directly with [the need for] smaller software.

That's about getting tools into their hands to view the right nuggets of data, whether that's a truck driver who needs to find out that he's got a direct store delivery of 50 cases at the local A&P or whatever those decisions are.

Data collaboration is going to continue to be a big issue. Companies' data is different. What one person calls this SKU and another person calls this product ID number or whatever — these things don't always match up. There needs to be some kind of data synchronization that happens, and that's an ongoing problem.

There's also disparate system integration. As you implement new solutions into a supply chain, this is how a company runs a business. These are the back-end systems that are the day-to-day core of these business organizations. It's not simple to plug one thing in, pull one thing out and plug another one in.

There is real heavy-duty, heavyweight lifting that happens behind the scenes to make sure that there is integration that happens.

Betts: One of the things that CEOs are struggling with, especially in heavy manufacturing in the U.S., as well as in Japan, is this construct about the machines: Why not just automate the machines more? Why not put a new robot in? Why not put a back end on a mail system?

The reality is, I think we've done just about as much of that as we can without it costing literally an order of magnitude more than we spent so far.

You can take those same dollars and exercise them against the supply network and get a much more significant return on investment than you can doing these things around the machines.

But because many CEOs have risen through the ranks in manufacturing, they're much more comfortable with buying the machine, because it's tangible. I can walk down to the plant floor and watch it being built. When it comes to software, they can't see it, they can't touch it. They're uncomfortable with that.

Kashmeri: **What return-on-investment criteria do decision-makers apply to supply chain management systems? Is the emphasis on the materials side? Collaboration? Planning?**

Jett: The initial criteria, certainly in this day and age, is *fast*: How quickly can you make a return on investment? And it's unfortunate, but it comes back to the [Internet] speed conversation that we've had, and

> How can we work with a smaller number of suppliers, still be efficient, still get the product that we need, but be diligent and manage those relationships a lot better?
>
> CRAIG R. JETT, E-MARKETPLACE MARKETING MANAGER, B2B SOLUTIONS, IBM

I think CEOs and other executives are looking at this and saying, "Well, I've got to be able to show a significant return on investment during this calendar year."

There are also business transformation issues to look at. How can we work with a smaller number of suppliers, still be efficient, still get the product that we need, but be diligent and manage those relationships a lot better?

Betts: What we've seen is there's a stair-step approach to this, and [it's] outside of the quick hits that are relatively tactical, like e-procurement.

Most companies that we've seen can get a 3% to 5% bottom-line cost reduction with focused visibility, and what we mean by that is, provide visibility across the divisions and across the supply chain partners. And that simple part of it is a huge win. Because now, no longer are you spending the next 45 minutes to an hour on the phone trying to figure out where the products are by calling the warehouses, calling the trucking companies and all of that. Now everyone has got the same view in front of them — the same plan, the same inventory levels, the same supply — and they can all see the same things, and now they can make joint plans together.

O'Marah: We recently polled 200-plus supply chain professionals and asked them, "What are your top metrics for supply chain improvement?"

The top responses, in order, were inventory efficiencies, fill rates and total logistics costs. We then asked them how much they had improved. No. 1, they have improved substantially, and No. 2, they expect improvements of 20%-plus against these metrics.

And these are people in the trenches doing the actual work. So the feeling is, from an ROI perspective, [that] this is where we go to persuade our boss that it's worth doing. ▶

This roundtable was a joint effort by Computerworld *and eBizChronicle.com, an online daily news service on e-commerce (www.ebizchronicle.com).*

Quick Link For the full text of this roundtable discussion, please visit the *Computerworld* Web site: www.computerworld.com/s/723077

Laptops in The Cockpit

It sounds like a no-brainer for pilots, but most commercial airlines continue to lag with inflight technologies aimed at making airplanes less paper-dependent.

BY MICHAEL MEEHAN

THE PAPER AIRPLANE is about to make its descent.

Though flight was one of the great technological advances of the past century, cockpits have lagged in the computer age because no one has beeo able to transfer the expensive paperwork in a pilot's routine to an automated and foolproof system. Rigorous maintenance checks and the need for well-established procedures and audit trails have made cockpits one of the most paper-intensive environmeots in the world.

But that's beginning to change as aircraft manufacturers and airlines have started to equip pilots with LAN-connected laptops as part of an effort to tame the paper tiger and belp pilots spend more time focusing on their flights and less time dealing with administrative work.

For its part, Chicago-based The Boeing Co. is looking to save a few trees during the oext year as it rolls out what it calls an electronic flight bag. This includes providing pilots with network-connected laptops that allow them to perform the calculations they need to do their jobs, such as takeoff speed, weight and balance.

"We've always wanted to do this," says Rick Blank, Boeing's director of cockpit information systems. "But it's not as simple as writing a program for a laptop. It takes multiple wireless devices, LANs and a fair amount of systems integration work."

The Boeing system is in prototype, but future releases will provide aeronautical charts and weather information. Chuck Albright, Boeing's program manager for crew information services, notes that pilots will be able to use a simple overlay map on their laptops rather than having to thumb through pages of maps and charts they normally use in flight.

Manual Labor

Yet the biggest paper beasts in any cockpit are the pilot's manuals. The required manuals for a Boeing 777 weigh 77 pounds. Add flight-specific documents and charts, and you can understand wby Boeing builds stnrage compartmeots for its manuals into its already space-challenged cockpits.

In addition, airplane manufacturers and airlines release constant updates tn those manuals, which require pilots tn constantly swap out pages in their binders.

One new airline, JetBlue Airways in Kew Gardens, N.Y., decided not tn jnin the paper chase. When JetBlue debuted in 1999, it did so with its pilots fully equipped with laptops.

"It's nice we don't have to kill half a forest to go fly," says Al Spain, a pilot and vice president of operations at JetBlue. Instead, all of the manuals for JetBlue's Airbus A320 aircraft are loaded onto PCs from Dell Computer Corp.

Most airlines run separate load-balance departments to do just the computations related to each flight. That's something JetBlue pilots can now do by themselves. JetBlue's laptops have also delivered a side benefit: additional customer service.

"We've had pilots go to the boarding gates and bring up the real-time maps and weather information for [passengers] when there's a delay," Spain said. "Then they can watch [the plane] nn the flight tracker."

Capt. Bob Brown, safety committee chairman for the Louisville, Ky.-based Independent Pilots Association, which represents the fliers at UPS Air Cargo, called JetBlue's current setup something "we eagerly await in this business."

"The top-of-the-line small, corporate airplane is absolutely light-years ahead nf where we are in terms of technology," says Brown, who cites cost as the primary barrier to industrywide change.

But the technology that's probably the most critical in helping airlines kick the paper habit might he the wireless LAN. Armstrong says he envisions pilots and maintenance crews being able to send information to one another electronically. Yet that would require wireless LANs at every airport. "The aircraft would essentially become a node hooking up to the system at the airport," he says.

Spain says that while JetBlue is working in that direction, it's an effort "that's going to require a lot of coordination between the airports and the air carriers."

Brown says big airlines like American Airlines Inc. and UAL Corp. could have a nationwide system in place within three years. But Henry Harteveldt, a travel analyst at Cambridge, Mass.-based Forrester Research Inc., warns that there are significant cultural issues for airlines to tackle before that can happen.

"Airplanes are extremely complex pieces nf machinery, and safety is a paramount concern, and there's a certain comfort level with the status quo," says Harteveldt. "This is going to require massive retraining once they get the technology in place."

Certifications: WHO NEEDS 'EM?

BY KYM GILHOOLY

Whenever an IT staffer at Carnival Cruise Lines earns an IT certification, Ken Eberhardt recognizes him with an additional certificate and other rewards at one of the company's quarterly service awards ceremonies.

"We believe employees don't have to be certified to be proficient, but we do think that certification means the employee has gone above and beyond," explains Eberhardt, director of MIS, telephony and administrative services at the Miami-based company. Carnival's 250 IT employees take pride in their certifications, he says, as the many acronyms listed on their e-mail signatures exemplify.

For many IT workers, earning a certification is seen as a badge of honor, not to mention a path to career advancement and increased compensation.

However, for the IT executive hiring new blood or promoting from within, the value of certifications has long been argued.

Detractors claim that a certification proves only that a worker is book smart. Such critics believe that certifications don't offer the hands-on knowledge that comes with experience. Conversely, proponents say certifications validate skills, establish a baseline for new hires and can be very useful in corporate retention strategies.

Nonetheless, the higher salaries and bonuses paid to certified professionals support the fact that many IT managers view certification as a powerful asset. According to David Foote, managing partner at Foote Partners LLC in New Canaan, Conn., and a *Computerworld* columnist, the certifications with the strongest growth, including project management, security, database and network operating systems, are earning IT professionals bonuses of as much as 13% of base pay.

Also indicative of the value of certifications is the fact that IT managers are willing to hire certified workers who don't have traditional degrees. As many as 40% to 60% of the people taking CompTIA's entry-level technician certification exams don't have two-year degrees, says Fran Linhart, director of certification for the Chicago-based organization.

In Carnival's Microsoft-centric environment, Eberhardt says he favors certifications, such as Microsoft Certified Professional (MCP), MCP+ Internet, Microsoft Certified Solution Developer, Microsoft Certified Systems Engineer (MCSE) and Microsoft Certified Trainer, as well as Cisco, Oracle and Novell certifications. In addition to encouraging the network and server groups to stay current with certifications, Carnival believes its help desk should be certified as well, Eberhardt says.

"When the help desk becomes certified, there are fewer calls escalated and they become quasitechs, so there's upward mobility," he says.

And increasingly, Eberhardt says, Carnival is getting its staff certified as Project Management Professionals (PMP), an emerging certification from the Project Management Institute in Newtown Square, Pa.

"Disciplined project management is very important, and the PMP is becoming the hot accreditation," says Eberhardt. Carnival requires that anyone involved in project work attend the beginning level of training; supervisors, department managers and directors must take the more advanced classes.

Certifications can also be helpful when a company must contract for outsourcing services.

"If I'm going to outsource, certification is a way of specifying the category of talent I need. I can say I'll pay so much for those working on my networks if they have Cisco certifications, or for my for [enterprise resource planning] systems if they have SAP," says Elliot Masie, president of The Masie Center, a learning technology consultancy in Saratoga Springs, N.Y.

For John Madigan, vice president of IT human resources at The Hartford Financial Services Group Inc. in Hartford, Conn., certifications are desirable and can tip the scale in certain cases, but experience working in a financial services setting is a far more attractive attribute, he says.

"We've looked at a number of folks coming out of dot-coms, and they were highly credentialed with tons of certifications. But we favor someone that has more specific experience in our business," says Madigan.

However, Madigan says he doesn't underestimate the role of certifications in retaining employees for whom certification signifies proof that they know their stuff. "We endorse certification as a retention strategy and offer education reimbursement," he says. "IT people like to grow their skills, and one of things that attracts them is professional development." ▶

Gilhooly is a freelance writer in Falmouth, Maine.

Overall industry and vendor certifications awarded

SOURCE: IDC, FRAMINGHAM, MASS.

KEN EBERHARDT: "Certification means the employee has gone above and beyond."

In the Nick Of Time

For some, timing is everything.

Though he says he doesn't put much stock in certifications as proof of real-world knowledge, Michael Sherwood uses them as prerequisites to attract new hires. The city of Oceanside, Calif., where Sherwood is director of IT, pays for training and testing for MCSE and Cisco Certified Network Associate (CCNA) certifications as part of the compensation packages of IT employees.

"As far as certifications go for hiring new employees, we don't care if they have them, because it only means they can read a book. For entry-level people, we send them to [CompTIA] A+ and Network+ classes and, after a year, to MCSE and CCNA classes. For that, they must agree to stay for at least a year [after earning the certifications]," says Sherwood.

The problem with most vendor certification training, according to Sherwood, is that it doesn't mirror real-world situations.

"Networks just don't work the way vendors have in their books," he says. "I'm much more interested in a candidate's ability and whether they've been in crisis situations. When you go to these boot camps, half the time they give you the answers, so an MCSE means nothing to me unless you have the experience to back it up."

However, certifications can be a powerful perk, and the combination of certification credentials and on-the-job experience makes an employee valuable at Oceanside, says Sherwood.

Despite the problems he sees with vendor certifications, Sherwood says he believes that IT workers reach a point in their careers when certifications are necessary to prove their marketability.

"Where certifications come in handy is when an IT career matures," Sherwood says. "At the engineering level, I wouldn't hire someone if they were in for 10 years but hadn't gotten certified, because at that point, they should have one to be marketable. That's where it comes in handy. Lots of bright people don't get them because they say they don't need them, but to me, you're not marketable."

– Kym Gilhooly

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Okay, now let's talk about your network.

Communication without boundaries

AVAYA communication

Distance learning can require sacrifice, discipline and self-motivation. But for many IT pros, it's the best way to a new degree or certification. By Leslie Jaye Goff

JACKIE SULLIVAN, a project manager at a large food manufacturer in the Chicago area, attempted to complete a bachelor's degree in IT twice before she concluded that, as a single mom and working IT professional, e-learning offered her the best route to a diploma.

Mike King, a contracted help desk support specialist at The Capital Group Cos. in Brea, Calif., would rather be playing with his dogs or watching *Friends* than sitting in a classroom. But now that his employer has made online training available, he can pry himself away from television to prepare online for an Microsoft Certified Systems Engineer exam.

Bruce Friedman, a software engineering manager at Litton PRC in McLean, Va., is focusing on management and leadership training this year. Nonetheless, he must keep up with emerging technologies. With e-learning (short for electronic or distance learning), he can make time for professional development classes without sacrificing his technical skills.

E-learning requires discipline and self-motivation. Sitting alone in the glow of a computer screen poring over material and completing online exercises can feel isolating. But these three IT professionals have found that online degree programs and skills development courses don't have to be lonely experiences.

In fact, Sullivan, King and Friedman say their online classes have been more engaging than other alternatives they've tried. Driven online by tight schedules, limited resources or simply a preference for self-study, they say e-learning offers the best of all worlds.

MARC BLEAU/CW

Jackie Sullivan

E-COMMERCE PROJECT MANAGER, CHICAGO AREA

Sullivan, a 14-year IT veteran, turned to the Web to earn her degree in IT out of sheer frustration. With a full-time project management job, two young children and a small software business on the side, she simply couldn't make the time to attend live classes.

It's not that Sullivan didn't try the traditional campus route. She started — and abandoned — two on-campus degree programs. But adding the Chicago-area commute to and from campus into her already crowded schedule left her no time to mingle with fellow students before and after classes. Sullivan says she has found a greater sense of community in the virtual campus of Capella University (*www.capella.edu*), an online university in Minneapolis, than she ever did at local colleges.

"I felt more alone going to on-campus classes than I do with e-learning because I have much more interaction with other students and the instructor," Sullivan says. "On campus, people weren't very open. Online, it's very easy to build relationships because everyone else is also learning on their own, so they reach out to each other more. You build more camaraderie."

The structure of the program reinforces the interaction, Sullivan says. At the beginning of each course, students receive a complete course outline, including readings, deadlines and project assignments. Throughout the course, they must post responses to group discussion questions, submit individual assignments and participate in virtual teams to complete projects.

"I'll get e-mails from people asking, 'How did you do this? What do you think the instructor is looking for?' "

> "I felt more alone going to on-campus classes than I do with e-learning.
>
> JACKIE SULLIVAN (ABOVE), E-COMMERCE MANAGER

E-Learning

Sullivan says. "We help each other out because we don't get a lot of examples from the instructor."

To keep up with assignments and ensure that she's contributing to online discussions, Sullivan says she only takes two or three courses at a time and completes assignments at night and on weekends. This time, she says, she's confident that she'll complete her degree because of the flexibility and because she found a program tailored to her personal interests.

"Pick an area of study that really interests you," Sullivan recommends. "Start out with one class to pace yourself, and make adjustments in your schedule where you need to. And determine what your real motivators are. If you just sign up because you feel you have to and not because you want to, it will be a drudge and your motivation will be low. But if it is to further your career and the subjects are exciting to you, it will make a big difference."

Mike King

DESKTOP SUPPORT SPECIALIST, CONTRACTOR FOR DIRECTFIT, A CONTRACTING AND PLACEMENT FIRM IN IRVINE, CALIF., ON ASSIGNMENT AT THE CAPITAL GROUP COS.

Although online skills training is solitary by nature, King says it makes him feel more connected and engaged than books, CD-ROMs or other forms of self-study.

"Back in '99, I bought a bunch of books and learn-at-home courses, and I hadn't been in school for a while, so it was really hard to get back into books," King explains. "But I use my PC and the Internet every day, so that's a much more natural way for me to learn."

Moreover, the flexibility of online training more than compensated for any sense of isolation, King says.

"If I hadn't had access to the online courses, I would have been in class two nights a week, spent thousands of dollars and had limited availability to the material," King says. "With online access, if I'm hungry for it, I can force it down my own throat anytime. If I decide I really don't want to do this right now, I can stop. Or if I want to change subjects midstream, I can, and I haven't lost any money."

King's employer, Directfit, has partnered with e-learning provider SmartForce in Redwood City, Calif., to offer online training to its contractors and employees. Since the start of this year, King has logged on for an introduction to TCP/IP, a course on setting up Windows 2000 servers and a refresher course for CompTIA's A+ certification.

"Personally, I don't feel a need to connect with other students," King says, noting that he has always preferred self-study to classroom training. In lieu of class discussions with other students, he says, the key to absorbing the material is to "go at your own pace, and don't feel rushed. You can always go back and review."

While interaction with a live instructor can be helpful, King says, several course features make up for the absence of a teacher. An audio component lends a feeling of interacting with a live instructor, King says. And quizzes at the end of each section of a course substitute for live feedback, cluing him in to what he has absorbed and what he needs to review.

Bruce Friedman

SOFTWARE ENGINEERING MANAGER, LITTON PRC, McLEAN, VA.

As he progresses up the management chain, Friedman says, he's reserving his classroom time for professional development courses. But e-learning affords him the time to continue skills training as well.

"I lead a development team, so I don't always have to be an expert in coding. But I have to understand how it all fits together and what the major tools are," Friedman says. "[Online] classes help me in that direction."

Since February, Friedman has taken about 30 hours of online training covering XML and Java programming, as well as an overview of the Internet's infrastructure. He tries to fit in two to three hours of online study each week and recommends that distance learners stick to a regular schedule.

"It's best to give yourself a set time every week to do it," Friedman says. "If there's a big gap between log-ons, then it's hard to get my head back into where I left off. So it's a good idea to say you'll do it every Tuesday for two hours."

While Friedman considers the online courses robust enough for keeping up his technical skills, he says that for more complex classes like project management or leadership development, he prefers more interaction with teachers and fellow students than e-learning provides. "I don't view this as my only mechanism for training," Friedman says, adding that he has signed up to take face-to-face management classes this summer.

For the skills he's picking up online, Friedman says, he didn't "feel the need to get into a group situation." If he needs help with the material, Litton has online training advocates he can reach out to, and online chat rooms and e-mail are also available if he desires interaction with other students or course experts.

"With the classes I'm taking at this point, I'm not missing out by not having dialogue with other students, but it's definitely less lonely than self-study," he adds. "This fills in the gap and gives me a lot of variety that, given my time and resources, I couldn't cover on my own." ◗

Goff is a freelance writer in New York.

Evaluating E-Learning

***Patricia McCormick**, a project leader at the Internal Revenue Service's School of Information Technology in Austin, Texas, says many students adjust to e-learning easily, while others require a greater level of interaction. The IRS has been offering e-learning since 1987 and now has more than 1,000 IT courses available online.*

How effective is e-learning? It's more effective than the classroom because you have to work harder. E-learning forces you to pay more attention than sleeping in the back row of a classroom. But we still have people whose chronic complaint is, "I want to go to a class."

How do you get these chronic complainers to adjust to e-learning? People who read a lot adapt easily – they consider it the same as a book but with more interaction and hands-on activity. People who learn by demonstration like the multimedia-type courses where there's a video of the instructor on-screen. The ones who really suffer are those who learn by interaction – by arguing with an instructor or by discussing it with others. For those, we're looking to provide more group interaction online.

How important are mentors or subject-matter experts? Absolutely critical. Whether you contract out the support or do it in-house or get your senior IT staff to take on mentoring and coaching roles, it's critical to student acceptance. A lot of people don't actually call – but they want to know someone is there to reach out to if they need it.

Evangelists

Job Watch

WHO: Payet Guillermo, founder, president and CTO, Ocean Group, Santa Cruz, Calif.

REPORTS TO: IT leaders at client organizations

JOB DESCRIPTION: Develops XML to package, transfer, link and translate a variety of data forms and applications

SKILLS REQUIRED: Web application and systems integration background; versed in HTML, parsing and common languages like C and Java

WHO ELSE NEEDS TO KNOW XML?
- Application developers
- Systems integrators
- Web developers
- Security professionals (See "The Threat of XML," July 9)
- Emerging structured-documents specialists

XML SURVIVORS

With the right companion technology and business skills, IT pros with XML experience could be sitting pretty. By Deborah Radcliff

ABOUT A YEAR AGO, Payet Guillermo's systems and Web development work called for more robust capabilities for the sharing of information and applications. That's when he started dabbling in XML.

XML is an important skill to master, because more clients are asking to link data sources and applications for use on Web sites and for back-office integration. And they'll soon be asking for business-to-business extranets as well, says Guillermo, president and chief technology officer at Ocean Group in Santa Cruz, Calif. "XML is already here, and it will eventually be very widely used," he notes.

The slowing technology market has taken a toll on Guillermo's IT consulting business — he had to lay off nearly his entire staff of 20. But he's staying busy with XML work for Web businesses that want to push paid-for content to their sites.

One of his clients, a women's sports clothing Web site, wanted a front-page window running scores of women's sporting events. London-based Reuters Media's news service provides the scores in XML format. Guillermo's job was to parse that data and translate it back into the client's native Java environment. After much research, he chose The Apache Software Foundation's Xerces XML parser, which is also available for C++ translation.

Applications like these often relay data directly between application servers housed at different companies. This makes security knowledge an important part of the job, Guillermo says. For example, he's now working with a company that wants its Web visitors to be able to query a back-end database for astrology information.

That astrology data actually comes from a third-party news service. Packaged in XML, the data is transferred to an application server at the Web business, where it's then pulled up to the user in HTML.

"We're putting an XML wrapper around code someone else has already written, and then the Web business can format it anyway they want," Guillermo says. "So you really have to pay attention to securing the data transport in these one-to-one connections, especially authentication."

This is where inquisitiveness becomes key. Working in XML during this early stage means following the many standards coming from the World Wide Web Consortium (W3C) and vertical industries, Guillermo says. While the W3C's authenticatioo and public-key infrastructure standards make a good starting point, XML developers must also track down best development practices, veodor developments and the evolution of standards.

"There are so many standards. And those standards are so immature," Guillermo says with a sigh.

The actual process of wrapping data in XML tags to identify that data is easier than doing so in HTML, because XML provides a set syntax, Guillermo explains. You also need coding languages — such as C and Java — to convert objects into XML, send them to another connection and parse them back into objects again.

"There are very few XML-specific jobs, just as there are very few SQL-only jobs," Guillermo says. "But the XML skill set will be essential for systems developers, particularly if they're working in systems integration in business-to-business."

Structured-documents specialist is another title arising out of the data-linking, -wrapping and -translation work in XML and its variants, says Dan Moniz, research scientist at peer-to-peer IT services company OpenCola Ltd. in Toronto. "Structured-documents specialists will need to understand the semantics and come up with schemas for information, metadata and tag sets. It is essentially information organization." ▶

THE FUTURE OF XML

With the World Wide Web Consortium near completion on more than a dozen XML standards, XML development will one day be a sought-after job skill.

18% of global 3,500 companies are using XML

35% are piloting XML, particularly in business exchanges.

82% of Web site development will occur in XML by 2003.

SOURCE: A MAY SURVEY BY FORRESTER RESEARCH INC., CAMBRIDGE, MASS.

SOURCE: A SPRING 2001 SURVEY BY EVANS DATA CORP., SANTA CRUZ, CALIF.

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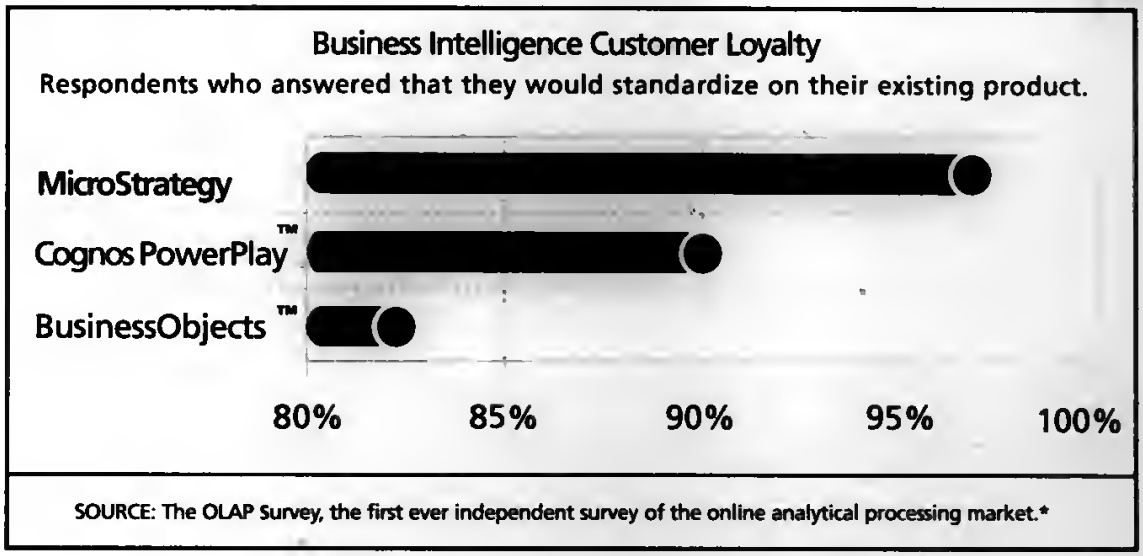

SOURCE: The OLAP Survey, the first ever independent survey of the online analytical processing market.*

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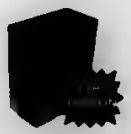

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Dear Career Adviser:

I've spent more than 15 years as an IT recruiter, managing all aspects of the recruiting process. I have assembled and managed teams of recruiters and understand Internet recruiting, and I'm a certified personnel consultant. I used to earn six figures. I'm in California and can't find work. — WHAT IS REALITY?

Dear Reality:

Statistics from New York-based Dice Inc. show that hardware engineers have the best job market this year, with the number of openings increasing by 15%.

Otherwise, across the board, the number of companies hiring is down and the number of technology openings is 30% lower than it was last year, says Dmitri Boylan, president of HotJobs.com Ltd. in New York.

If you want to fill technology jobs in California, your best bet seems to be hardware engineering or working on very hard-to-fill jobs on a contingency basis.

Alternatively, you could switch industries and start staffing in health care or education. Or you could relocate. Cities such as Milwaukee, which didn't plunge headlong into dot-coms and the Internet, still have stable non-dot-com business bases, according to Boylan.

Dear Career Adviser:

I've worked in New Hampshire in logistics for the past 25 years and am thinking of taking some courses in client/server application development for the Web. My background also includes some project work, so I can shift over to this type of work, possibly as a software developer. The training I'm considering emphasizes Oracle for the back-end and Visual Basic and PowerBuilder front-end graphical user interface development tools. I also have some HTML experience. I'm worried about my choices if I'm downsized.

— LEAVING LOGISTICS

Dear Leaving:

"If there is an opening for a client/server, HTML software developer, companies will hire someone who has been doing this commercially for at least three strong years," says Mark Goodstein, president of Techpros Inc. in Needham, Mass., and vice president of the Massachusetts Association of Personnel Services in Malden, Mass.

PEGGY CARTER is an expert in high-tech careers and recruitment. Send questions to her at www.computerworld.com/career_adviser.

Your plan does not leverage your best asset, which is your logistics experience. Instead of a software development path, focus on becoming a business analyst, either for a company selling software and services into a logistics market or for a company buying such services, advises Jason Osborne, IT manager at logistics services firm P&O Cold Logistics in Henderson, Nev.

If you aren't already doing so, start an aggressive campaign to at least learn the talking points of automated warehouse management and logistics applications, covering areas such as supply chain management and warehouse distribution, as well as technologies like radio frequencies, bar coding and electronic data interchange. ▶

WORKSTYLES

Airline Leads in .Net Deployments

When Bill Gates showcased Microsoft Corp.'s .Net framework and Visual Studio .Net tools in Atlanta this summer, he also placed the spotlight on Scandinavian Airlines System AB (SAS). The $5 billion Stockholm-based international carrier was one of the first companies to deploy a .Net wireless application.

U.S. IT managers who are considering such an application for their companies may first want to hear what the manager of SAS's .Net initiative has to say about the project and working at the airline.

Major IT initiatives: "We're building Web services using Microsoft's .Net tools and C# language. The application has two services. One service is to allow our customers to check and see if their flight is delayed. The other service is the ability to rebook a reservation. Both services run on a [Wireless Application Protocol] phone or device.

"In Europe, people are using all types of mobile phones, from companies like Nokia and Ericsson, and handheld devices, like Microsoft's Pocket PC and [Palm Inc.'s] PalmPilot.

"We're using Visual Studio .Net and Microsoft's Mobile Internet tool kit, and they have provided us a lot of support in making this application."

IT training? "We have developers working with Microsoft's .Net framework and tools. For that project, the developers with a background in C++ got to learn C#.

"We have some basic training courses in development methodology using unified processes from Rational Software. And then we also have 10 working days of pure professional education for employees, and department seminars regularly."

Dress code: Casual dress — jeans and T-shirts. "We have a policy of wearing suits if we are going to meet customers."

Reviews and bonuses: "In Scandinavian countries, we all get an annual review where we discuss education and the next steps in career advancement and achievements. We sometimes get a bonus. Our bonus is measured on achievement in different areas, and it varies."

Scandinavian Airlines System

Main location: Stockholm

Number of employees (and users): Approximately 31,000

Employees in IT: 2,100

Interviewee: Peter Muller, deputy director of sales and revenue management solutions for SAS's IT group

Tenure: Two years

Must people carry beepers? Cell phones? "I have my cellular phone. It's a company-paid-for phone. Most people have them."

Free refreshments: "We get soft drinks and coffee and fresh fruit."

What do you keep on your desk? "I have my laptops and papers and a coffee cup that's a kind of art. It's a cup with coffee and sugar, but its artificially made, so people come up and wonder why this old coffee is sitting there."

Perks: "We get free airline tickets."

Would employees feel comfortable e-mailing the CEO, Jorgen Lindegaard? Yes. "And he would respond and then transfer the case to someone else. At the senior levels, they take contact very seriously."

— Lee Copeland

Efficient? Become Superefficient

BY KATHLEEN MELYMUKA

You've streamlined your processes, broken down your silos and integrated information flow throughout your company. You've even made virtual connections with your suppliers and customers.

Big deal, says **Michael Hammer**. *You've only begun to get efficient.*

In September's Harvard Business Review, *Hammer, the founder of Hammer and Co., a Cambridge, Mass.-based management education firm, uses case studies to demonstrate that the next frontier in efficiency may be integrating your processes with those of your "co-suppliers" and "co-customers."*

This is the third in a series of monthly discussions with authors of articles in the HARVARD BUSINESS REVIEW on topics of interest to IT managers.

Q: You make the point that traditional terms like *customer, supplier* and *competitor* don't describe the relationships that may be the key to the next great leap in efficiency. What are these other relationships?

A: Let's say you and I provide different, noncompetitive products or services to the same customer.

In the past, there was no word to describe our relationship because we didn't care about each other. There was nothing we could do together.

Now we can. I call that "co-suppliers." Similarly, two unrelated companies purchasing from the same supplier are "co-customers." In the past, we couldn't leverage each other. Now we can.

Q: How?

A: Co-customers can present a single face to suppliers. They can combine orders, make life easier for the supplier and reduce their own costs. When the supplier has to process only one order rather than several, it gets a larger volume and can respond with lower prices.

On the other hand, co-suppliers can present a single face to the customer. For example, they can allow the customer to bundle an order to both companies, present a single invoice and coordinate a single delivery. It makes life easier for the customer, and that makes the customer more loyal.

> Instead of being scared, say, 'There is a payoff here, and we're all going to work together to make it work.'
>
> MICHAEL HAMMER, FOUNDER, HAMMER AND CO.

Q: I suspect the biggest challenges to getting this done are political.

A: Always.... There's the issue of sharing information with outside parties. You have to tell other people who your suppliers are, and we're not used to sharing that kind of information even with noncompetitors. Then there's the whole set of issues about divvying up the spoils: You and I combine purchasing, and we get a lower price from a supplier. How do we divide that up? Do we share savings equally, proportionally?

Q: How do you respond to those objections?

A: Instead of being scared, say, "There is a payoff here, and we're all going to work together to make it work." You have to have the right mind-set.

On Wall Street, they say bulls make money, bears make money and pigs get slaughtered. If you try to hog all the benefits, it won't work. You have to be willing to leave something on the table for others.

Q: What are the biggest technical challenges in this kind of integration effort?

A: Integrating back-end systems to each another.

Q: If you want to become superefficient, what do you look for in a potential partner?

A: You want to have someone who's ready for this.

If someone has a lot of internal efficiency problems, they're not ready to concentrate on these issues. They have to get their own house in order first. They have to have already milked what efficiencies there are to... be ready to face the next wave of challenges.

They also need good systems-integration capabilities and a willingness to approach this with partnership rather than short-term self-interest in mind.

Q: Who performs the role of executive sponsor for an intercompany partnership?

A: Usually, one company takes the lead, and that executive sponsor rounds up the other companies involved.

Q: What kinds of results have companies seen when they've actually created this kind of relationship?

A: You see major reductions in inventories, procurement costs and prices, and increases in customer satisfaction and retention. ◗

If you ask IBM, e-business is complicated and hard.

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With fourteen operating systems, multiple chip architectures and a tangle of middleware to deal with, IBM's servers sure need a lot of integrating. No wonder they charge so much to "manage" customers' infrastructures.

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IBM has it all wrong: e-business doesn't have to be complicated *or* hard. You just need the technologies and partners that always speak the same language: yours.

take it to the n[th] Sun microsystems

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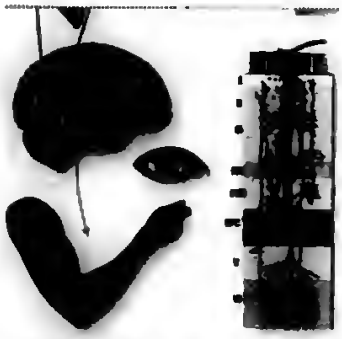
THIS WEEK

OPEN-SOURCE DATABASE OPTIONS

MySQL and PostgreSQL are among the open-source database management systems that offer much of the functionality of the majors — Oracle, Sybase, DB/2 and SQL Server — but cost less. Users say the open-source alternatives are capable of doing most jobs, but you may encounter some support problems if you use them. **PAGE 48**



FUTURE WATCH

While it sounds like a cyberpunk fantasy, scientists are beginning to wire animal and human brains to computers. This research may not only help the disabled, but also eventually lead to more efficient networks. **PAGE 52**

QUICKSTUDY: Sockets establish communications links between client programs and server programs across LANs, WANs or the Internet, and sometimes between processes within a computer. Find out more in this week's primer. **PAGE 53**

EMERGING COMPANIES: Ease of use has been one of the barriers facing Linux advocates in their effort to put the operating system on end-user desktops. Ximian is hoping its Evolution application suite and administrative tools will help solve the problem. **PAGE 55**

NICHOLAS PETRELEY

ActiveX in Disguise?

LAST WEEK, I SUGGESTED THAT Microsoft's promotion of XML and its attempt to hand the C# language to a standards group are decoys to distract you from the long-term consequences of adopting .Net. It's been a fairly easy task for Microsoft to muddy these issues. The .Net plan encompasses so many services and technologies, it's difficult to grasp what it means to adopt any subset of them.

Now along comes Ximian, a company dedicated to free software projects like GNOME (see Emerging Companies, page 55). Ximian recently announced its intention to reproduce much of the Microsoft .Net development environment as a Linux-based project called Mono. Ximian's goal is to deliver an open-source implementatioo of the C# language along with a set of open-source class libraries that are compatible with the Microsoft Common Language Infrastructure (CLI).

What a deal: A standards group controls the C# language, Microsoft promotes XML and now someone is even going to create an opeo-source implemeotatioo of the .Net development platform!

Sounds like open-source nirvana, but for two teensy problems. First, as I pointed out last week, the CLI is the engine that runs C#. It has built-in hooks for the Microsoft Web services HailStorm and Passport. Microsoft is structuring the CLI this way because it's staking its future revenue on the success of HailStorm and Passport. People aren't upgrading Windows and Microsoft Office like they used to.

Right now, Microsoft is compensating for the decline by offering long-term eoterprise agreements to companies and government agencies as an alternative to "voluntary audits" of existing software licenses. But it's betting the future on monthly payments, and that means HailStorm and Passport. And if Passport becomes the de facto standard for single sign-on for Web services, then Microsoft will surely wield its dominance over authentication services to control the competition the same way it leveraged its Windows monopoly on the desktop.

Can Ximian prevent this by making .Net open source? Unlikely. On the one hand, Ximian claims that Mono has nothing whatsoever to do with Passport. On the other, Ximian admits that Mono must provide developers with interfaces to Microsoft's HailStorm and Passport Web services in order to be fully compatible with .Net. Ximian therefore plans to provide the functions programmers need to build applications that use Passport. Unfortunately, Ximian has no idea yet whether it will be possible or eveo legal to actually build Mono to connect to Passport.

Fortunately, there are others in the open-source community who are thinking more clearly. Alan Cox, the most prominent programmer and maintainer of the Linux kernel other than Linus Torvalds, ideotified a number of crucial issues in a recent e-mail conversation we had.

Alan pointed out that Microsoft will make .Net development tools that will produce applications that create an unpleasant experience for users who don't subscribe to Passport, the same way its applications produce HTML that's annoying to view in Netscape. Alan also said that Microsoft has already floated a software license that makes it illegal to mix Microsoft tools and libraries with software licensed under the GNU General Public License.

That means you can only combine open-source software with Microsoft libraries if you give Microsoft the right to take what you've cootributed for free, make it proprietary and then sell it back to you.

Alan nailed .Net for what it really is. You can call it .Net, HailStorm, Passport or CLI, but all .Net amounts to is warmed-over ActiveX. ActiveX failed to catch on and lock Internet users into Windows, in part because someone was clever enough to demonstrate how easy it was to create an ActiveX-enabled Web page that steals information from your Quicken database if you visit that site.

It's relatively easy to protect your company from e-mail Trojan horses like Melissa and SirCam after others have been victimized and programmers of virus scanners know what they're looking for. It's quite another thing to filter potentially dangerous active content through a firewall. And that's not a problem you can solve by making the warmed-over ActiveX components open source.

Given that .Net in any incarnation is just ActiveX revisited, CTOs should be more concerned about how difficult it will be to protect their companies from .Net than how to deploy it.

NICHOLAS PETRELEY is a computer consultant and author in Hayward, Calif. He can be reached at nicholas@perlvoice.com.

Open Source Databases BLOOM

Most talk about open-source software involves operating systems, Web servers and tools. But the hidden treasure may be in open-source database systems. By Peter Wayner

DATABASES WERE ONCE THE forgotten stepchild of the open-source family. Companies like Red Hat Inc. included database software with their Linux distribution disks, but the main focus was on the operating system, the kernel and the graphical interface. A database was just another add-on, like a Minesweeper clone. But now, companies and users are scrambling to realize the value locked up in quality, open-source database software.

The two major open-source databases are MySQL, a lightning-quick database with roots in Sweden, and PostgreSQL, the latest version of a venerable database project (Postgres) that began at the University of California, Berkeley. Both are common programs that are installed on many servers and are often included free with other packages and distributions. Other versions and cousins exist for different markets. Lincoln, Mass.-based Sleepycat Software Inc., for instance, builds and maintains a small database, which it calls Berkeley DB, for embedded systems.

All of the packages come with open-source licenses, an option that often makes them free to obtain, but new options for purchasing support are evolving as companies try to undercut the major proprietary competitors. Everyone is acutely aware of the high cost of packages from Oracle Corp. and IBM, and several major players are trying to sell sophisticated support with open-source databases.

Finding high-profile open-source database users isn't hard. Many Web sites, including Yahoo and Slashdot, depend upon open-source databases like MySQL to store articles and comments. Many companies that provide shared servers now offer MySQL databases as an inexpensive option, practically guaranteeing that many low-budget Web sites depend upon the tools.

The products are gaining notice in corporate environments. Robert Beer, a London-based programmer who identifies himself as a "long-term Oracle DBA and recent Postgres convert," says Postgres offers him most of the essential features found in Oracle,

MICHAEL GRECO/STERN

with "many of them implemented in a more logical and more ANSI-compliant way."

Still, he grouses that the documentation is scarce and there are few outside options. "I have only found one good book on using PostgreSQL, either in London's excellent bookshops or on the Net. On the other hand, the world is awash with great books and courses on Oracle and SQL Server," he says.

Don't Bet the Farm

Many corporate IT managers share Beer's enthusiasm for the tools, but they often have reservations about trusting their companies' most valuable data to open-source databases. Phillip Moore, an executive director at New York-based Morgan Stanley Dean Witter & Co., says his firm frequently uses open-source products for projects. Databases, however, contain the information that's the lifeblood of his industry. "In the database space today, commercial databases have more to offer for a commercial venture like ours," he explains. "But that's an important caveat. If I was at home, I would be using PostgreSQL or MySQL."

Moore says that in his eyes, many of the open-source tools like MySQL don't offer the same sophisticated mechanisms for juggling requests from multiple users, while products like Oracle or DB2 thrive when faced with these challenges. His company, however, continues to evaluate the products and to consider the best product for every challenge.

In some cases, companies are trusting open-source applications with basic tasks. Stefan Sharkansky, a developer at Personal Fund Inc. in San Francisco, says, "I still use MySQL for jobs like storing log files that you don't change. More complex queries, like how much money people have, are handled with Oracle."

Other devotees also praise the open-source software but say the lack of commercial infrastructure makes it difficult to use in a business environment. Fillp Hanik, a San Francisco Bay area-based database administrator, uses MySQL or PostgreSQL for personal and low-budget projects but recommends Oracle for serious projects with big budgets.

"If there's a problem, we say, 'Give me an Oracle consultant.' Then we give them $250 an hour to fix our problems. We just can't do that with a PostgreSQL person," he says.

Growing Support

Several companies are fighting to change that perception by offering support at more reasonable prices. Norfolk, Va.-based Great Bridge LLC, for instance, is aiming at becoming the premier supplier of Postgres databases. "The core team [of Postgres developers] has six members. Three of the six members work full time for Great Bridge. Fourteen of the leading contributors are on the Great Bridge advisory board," brags David Mele, the firm's vice president of marketing.

"Support is all we do," he says. "We staff it with experts. It's not a necessary evil for us. We don't tell you to get in line for a feature. You can develop it yourself. We also have a consulting practice. We can help you."

Durham, N.C.-based Red Hat is also rolling out its own version of PostgreSQL, which it calls Red Hat DB. Mike Evans, product manager for the group, says Red Hat will target the IT manager who wants "one neck to choke." Red Hat will try to build its business by offering all of the consistency, hand-holding and ease of use of a major brand, at a substantially reduced price. Evans promises that Red Hat will continue to release identical versions on its Web site for download.

"There will always be 30% to 40% that have the desire to get it themselves, and we're not going to stop them. We'll continue to include PostgreSQL in the Red Hat CDs," says Evans. "It really comes down to a shift to what our more business-oriented customers want: 'I don't have the time to cobble it together. You do it for me, and I'll pay you for it.' "

Other companies are expanding their open-source offerings. For instance, NuSphere Corp. in Bedford, Mass., offers a bundle that combines the MySQL database, the PHP scripting language and the Apache Web server. One quick installation ensures that the three work reliably with one another.

> "We're targeting the IT manager who wants one neck to choke."
>
> MIKE EVANS, PRODUCT MANAGER, RED HAT INC.

"[Open-source software] is such a fast-moving train. We provide at least quarterly updates as part of our advantage product. We keep everyone updated. Some customers say, 'I can build it once myself, but I don't have time to keep up with all the changes.' Knowing that, they always have the very latest [updates] that work together in a supported configuration," says Brit Johnston, NuSphere's chief technical officer.

Johnston's sales pitch aims at the assumption that low-cost software requires more expertise and more time. But many users say such assumptions aren't really fair today. Tools like MySQL and PostgreSQL are very polished and are becoming more so very quickly.

Calvin Dodge, a database developer at Linko Data Systems Inc. in Lakewood, Colo., says the advantages of slick, polished and professional databases are overstated for everything except small projects. Dodge argues — and many other developers agree — that the difference disappears once you need to start writing code. All databases, both proprietary and open source, require some time to learn their quirks, he says.

"Access has all sorts of wizards that help one make simple forms and tables — but they don't work as well as the complexity increases," he says. "When you have lots of records, you need to go to code-based data retrieval, and in that case, there's no difference in the ease of development."

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Quick Link For an annotated roundup of open-source databases and development tools, visit our Web site www.computerworld.com/q?23154

Your supplier could be holding
four aces. Then again,
it could be a pair of threes.

sas

Wetware

Human and animal brains are being wired to computers

BY PRESTON GRALLA

IT SOUNDS LIKE something straight out of cyberpunk science fiction: monkeys controlling robot arms miles away through their brain waves; quadriplegics regaining some use of their limbs by merely thinking about moving them; silicon-based brain implants.

Work on such brain/computer interfaces (BCI) is going on in laboratories nationwide. The goal is systems that not only let people control computers merely by thinking, but that also may eventually allow direct communications between computers and the brain.

Research on BCI dates to the 1960s, when scientists found out that people had the ability to control portions of the electrical signals produced by their brains. These signals, or electroencephalograms (EEG), can be measured by sensors placed on the scalp.

Then, in the late 1990s, P. Hunter Peckham, a researcher at Case Western Reserve University in Cleveland, created a BCI that allows quadriplegics to manipulate a cursor on a computer screen and even move their hands to manipulate objects such as forks by altering their EEGs and sending those signals to a computer.

In that system, there is no direct physical connection between computer and brain. But the ultimate goal is to enable information to flow between computer processors and brain cells. That requires researchers to understand how the brain works, so they can create communications chips that can be directly embedded in the brain.

It also requires that some physical method be developed to fuse those chips and processors with the brain itself. Researcher Philip Kennedy and neurosurgeon Roy Bakay at Emory University in Atlanta have developed implantable electrodes that are tiny glass cones with holes in them. Inside the cones are microscopically thin gold wires, electrodes, nerve tissue taken from the patient's leg and "tropic factors" that induce brain cells to grow into the cone. They have successfully fused these electrodes with the brain.

Even that is barely a first step for what Theodore Berger, professor of biomedical engineering at The University of Southern California in Los Angeles, envisions: a complete computer-based brain implant. To develop such technology, Berger and his team have been studying the brain's information-processing algorithms. He plans to hard-wire those algorithms onto microchips that can be implanted to supplement the brain's work.

The group has yet to completely understand the brain's algorithms, and there's still the nagging problem that microchips currently are far too big to be implanted in humans.

Meanwhile, BCI has some short-term benefits. For example, quadriplegics and other disabled people are able to control computers and their limbs using the technology. In the longer term, those with other disabilities and brain diseases could also benefit.

The technology could also have a place in the office — controlling computers via EEGs would free people's hands from the keyboard and mouse. And work on understanding how the brain does parallel processing could lead to more effective networks. Such networks could enable higher-quality wireless communications because parallel processing networks can more effectively filter out noise.

In the very long term, one can imagine silicon-based immortality, as chips and processors first supplement and then eventually replace an aging brain. Until then, we'll have to content ourselves with controlling our PCs with our thought waves. ▶

Gralla is a freelance writer in Cambridge, Mass. He can be reached at preston@gralla.com.

Defense Advanced Rodent Project

The U.S. Defense Advanced Research Projects Agency (DARPA) wants to use remote-controlled rodents to seek out mines, toxins and other hazards.

The idea is to literally program a rodent's brain with neural algorithms – beamed from afar to tiny receptors embedded in the skull – commanding the animal to look for certain things.

A rodent that finds a gas might die, but not before its brain radios back a brain-wave code for it via a microscopic transmitter.

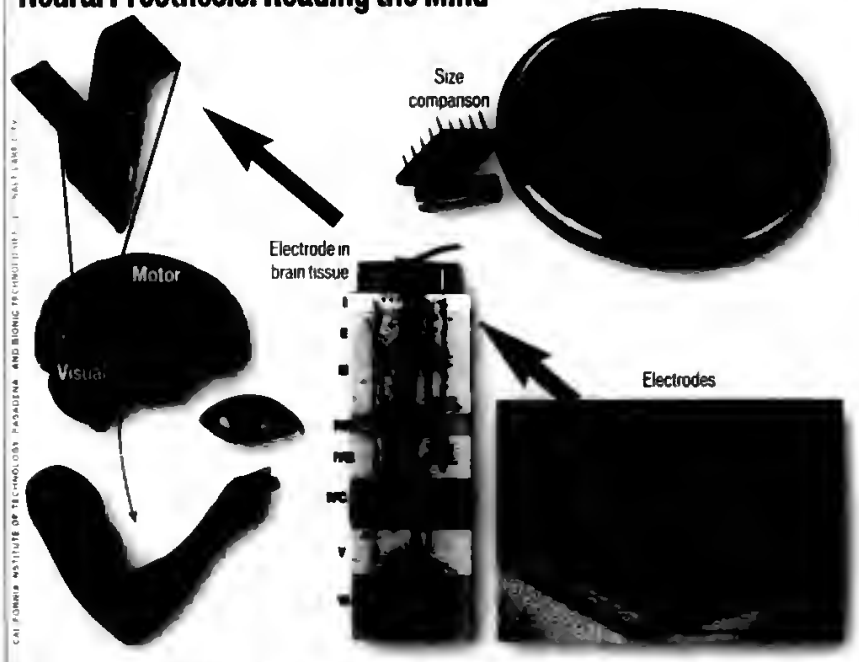
DARPA is also working on "augmented cognition," which involves two-way communication between humans and computers.

"Suppose we are in the middle of a conversation and something occurs to you that you want to follow up on, so you issue a cognitive Post-it note," says former DARPA manager Gary W. Strong, who is now a computer scientist at the Arlington, Va.-based National Science Foundation.

The "note" could be transmitted, stored and later recovered via brain waves picked up by an EEG headband attached to a computer, Strong explains.

– *Gary H. Anthes*

Neural Prosthesis: Reading the Mind



RESEARCHERS AT Caltech and Salt Lake City–based Bionic Technologies LLC are learning how to translate planned actions in the brain into equivalent robotic actions. Here, tiny electrodes are implanted in a fold in a parietal cortex, the region where intent to move is formed. Those signals are routed to a computer that can interpret the brain waves and send commands to move a robotic or paralyzed arm.

Sockets

DEFINITION

A **socket** is a method for establishing communications links between a client program and a server program across a LAN, a WAN or the Internet, and sometimes between processes within a computer. A socket can be considered the endpoint in a connection. A client socket in one computer uses a predetermined network address to "call" a server socket on another computer. Once the appropriate sockets are engaged, the two computers can then exchange data and services.

BY ALAN JOCH

BORN AT THE University of California, Berkeley, in the 1980s, sockets first appeared in the Unix world as the Berkeley Sockets Interface, a programming device designed to help far-flung networked computers exchange information.

By the mid-1990s, Microsoft Corp. had created its own sockets variation, Windows Sockets (more widely known as WinSock), so Windows applications could talk across network links.

As software engineer Jim Frost explains in his Web treatise "Windows Sockets: A Quick and Dirty Primer," sockets are the computer programming world's equivalent to a telephone, where devices that have their own numerical addresses become the vehicles for two-way communication.

Programmers use the labels "client" and "server" to distinguish between the computer doing the calling and the one receiving the call. Computers with server sockets keep a communications port open, ready for any unscheduled, incoming call. Clients typically determine the port number of the desired server by finding it in a Domain Naming System database.

A little tap dance happens on the server side when the connection is made: Rather than continuing the conversation using the original port, the server switches the dialogue over to a related port to free up the main line in case additional clients try to get the atteotion of the server.

With the rise of the Web, sockets continue to play important, if somewhat more behind-the-sceoes, roles in keeping communications flowing over the Internet.

"Every application you use that touches the Internet is written on top of sockets," Frost explains in his primer. For example, sockets are integral parts of Web site addresses. Web browsers and the security technology called Secure Sockets Layer.

Coding a Simple Socket

A simple threaded server framework sockets application in Java by Jim Frost:

```
public void startServing()
{
 Socket serverSocket = new
ServerSocket(PORT_NUMBER);
 for(;;){
  try{
   Socket clientSocket = serverSocket.accept();
   new Thread(){
    public void run(){
     doSomething(clientSocket);
    }
   }
  }
  catch (IOException e){
   System.out.println("Failure: " + e.toString());
   System.exit(1);
  }
 }
}
```

However, today's Web programmers are almost always shielded from having to manually create their own sockets. "Sockets aren't really necessary for Web-based application development," says Brian "Beej" Jorgensen, author of the Web publication "Beej's Guide to Network Programming: Using Internet Sockets."

"Whether you're using Java, servlets, [Common Gateway Interface], PHP or whatever, you probably will never have to explicitly open a socket," he says. "The socket is still there, mind you, making the connection between the user and the Web application, but the nitty-gritty details of the socket tend to be hidden under higher layers so that most people don't have to deal with them. That being said, all Web browsers, [file transfer protocol] clients, e-mail clients and their respective servers use sockets to get their work done."

Programmers get a break from the heavy-lifting aspects of socket creation, thanks to new generations of class libraries. Examples include the Microsoft Foundation Class Csocket and CsocketFile, says Frost. Unix programmers cao use Socket++.

Java programmers have their own set of sockets tools.

Java.net.Socket is a widely used class for creating a platform-independent client socket, while java.net.ServerSocket can build a socket ready to receive requests from clients. With these, developers çan create sockets quickly without getting bogged down in programming details.

Frost says he wrote the sample code in the "Coding a Simple Socket" example at left in 15 seconds. How much time and effort would have been required to do that in 1995? "I could probably have done it in about 10 or 15 minutes, but not entirely out of my head," he explains. "There are too many little details to remember — like the names of the fields you have to populate in the address structure [and] the names of the constants you have to use to create a TCP socket."

Joch is a freelance writer in Francestown, N.H.

More on Sockets

The Web is a ready resource for detailed information about building sockets on a variety of platforms. The following are some helpful sites.

► *www.sockets.com/*
A guide for users of WinSock 1.1 and 2.0, including sample source code and links to other pages.

► *http://java.sun.com/docs/books/tutorial/networking/sockets/*
A tutorial for Java developers.

► *www.db.stanford.edu/~cho/programming/unix-socket-faq.html*
A guide for C programmers interested in creating Unix sockets.

► *www.lcg.org/sock-faq/*
A list of frequently asked questions devoted to Unix sockets

► *www.ecst.csuchco.edu/~beej/guide/net/html/index.html*
"Beej's Guide to Network Programming: Using Internet Sockets," by Brian "Beej" Jorgensen

► *http://world.std.com/~jimf/papers/sockets/winsock.html*
"Windows Sockets: A Quick and Dirty Primer," by Jim Frost.

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VPN Security Review Moves To the Front Burner

Management finally backs a security analysis of a new VPN; now Mathias Thurman just needs a plan

BY MATHIAS THURMAN

IN MY LAST COLUMN ["Security Review Gets No Respect From Managers," Aug. 27], I talked about the problems I was having at my company trying to convince managers on the virtual private network (VPN) project team of the importance of creating a secure VPN infrastructure — and the tasks required to build that infrastructure. Since then, I seem to have broken through some cultural barriers; perhaps it was the Trojan horse demonstration I gave recently. During the last VPN project meeting, the project team was very receptive to my suggestions. This week, we spent a significant amount of time delineating the security tasks.

To make these tasks more meaningful, I took a modular approach and divided them into four areas: the VPN gateway, the Lightweight Directory Access Protocol (LDAP) server, the VPN clients and the general network design.

SECURITY MANAGER'S JOURNAL

The VPN gateway, also called a VPN server or VPN switch, is the heart of the infrastructure. It's the single point at which all VPN clients and other devices communicate to establish the VPN tunnel. The gateway establishes the encryption settings and key management and controls the all-important rule base that dictates who can go where and do what.

Most VPN gateways are very similar to firewalls. Access-control lists have to be configured to allow or deny traffic to destinations protected by the gateway. My major task items for the gateway include reviewing the rule base to ensure the appropriate level of protection for the resources behind the gateway. The rule base, combined with router access-control lists and firewalls, protects critical resources by limiting access to users with authorized addresses.

I also included a penetration and denial-of-service test as one of my tasks. This should ensure that there aren't any configuration problems or weaknesses that might give a hacker the ability to gain unauthorized access to the gateway or successfully launch a denial-of-service attack that would prevent users from establishing a VPN connection.

Next, I want to ensure that the out-of-band (OOB) administrative access point is secured. OOB refers to a secure method for administering a server. VPN devices normally include a separate interface for administration. This interface can be configured on a protected network. Not only are we concerned about external threats, but we also have to be wary of disgruntled employees. Controlling and limiting access to the administrative interface for the VPN gateway should help reduce this risk.

We could have used our VPN gateway to authenticate users to the VPN, but we decided to off-load the authentication to an LDAP server instead.

LDAP was a logical choice for us because we're planning on moving much of our company's authentication data to LDAP. In addition, if the user base starts growing, there might be a performance and capacity problem if we leave authentication on the VPN gateway. The LDAP server itself consists of nothing more than special software installed on a Sun Solaris server.

The first task is to ensure that the underlying Solaris operating system is secured, or "hardened." I compiled a checklist and gave that to the engineer who will be setting up the server. He will harden the operating system, install the LDAP software and then go back and review the operating system to ensure that the new software didn't change the configuration.

Other task items for the LDAP server include a reviewing the operating system installation, controlling administrative access to the LDAP server and ensuring that secure communications and trust relationships have been set up between the LDAP server and the VPN gateway.

VPN Client: The Achilles' Heel

The client often receives the least attention in a VPN rollout, but it can create the biggest hole in the infrastructure. Once the server authenticates a user and the gateway creates an encrypted VPN tunnel session, the user is on the internal network.

If a hacker can determine the client configuration and a valid user ID and password, then the system will be compromised no matter how much effort you put into the rest of the VPN architecture. The task assignments I created for this module include checking user configuration issues, setting session time-outs and establishing policies.

For example, my company provides laptops for remote users and configures the laptops in such a way that the users can't make any administrative-level changes to their individual laptop systems.

The question is, should we let employees make changes to the VPN client software? And should we let them install the VPN client on their home computer systems? That could introduce vulnerabilities, since we can't determine the integrity of home systems. But limiting the amount of control the user has might also cause support problems. And if a user can't make configuration changes, how can effective troubleshooting take place?

The best way to deal with this issue is to create detailed, but user-friendly configuration instructions that are balanced with a policy to address security issues that might arise from improper configurations.

Once I've addressed all of the major VPN components, the next area to tackle is the placement of the components into the production network. Important issues here include network segregation, router access-control list protection and the proper configuration of firewalls.

Companies often put a lot of effort into securing the VPN gateway, access servers and clients and then stick them on a network that has other, less secure systems sharing the same segment.

If a hacker gains access to the less secure system, he has unrestricted access to the VPN infrastructure. Why? Because when infrastructure resides on the same network, this "on-net" traffic normally doesn't go through a firewall or gateway router. On-net traffic usually has unrestricted access to other devices, so clear and distinct separation of critical infrastructure is extremely important. I want the VPN gateways and LDAP servers to be configured on two different network segments.

By modularizing the pieces of the VPN architecture, I should be able to easily apply the appropriate security best practices while balancing other administrative and support-related issues. Creating a security architecture is an art. I'm sure my approach to VPN design, configuration and assessment is different than others. If you have a different approach, or see something that I missed, I welcome your comments in the Security Manager's Journal forum.

THIS WEEK'S LINKS

http://nsa2.www.conxion.com/: The National Security Agency's Web site is at first glance an unlikely source for information security resources, but I found good information on Windows NT and Cisco Systems Inc. router security here. Read up and use it as part of your system and network security program.

www.ietf.org/html.charters/ipsec-charter.html: Most VPNs use the IP Security Protocol (IPSec) as a standard to support authentication, session and data integrity, access control and confidentiality across multiple vendors. Although I've heard that there are still some interoperability problems between some products using IPSec, the protocol is essential reading material. This Internet Engineering Task Force Web page reveals everything you ever wanted to know about it.

www.checkpoint.com/vpnguide/: This document at the Web site of Israel-based Checkpoint Software Technologies Ltd. includes a comprehensive glossary of VPN security terms.

Quick Link: For more on the Security Manager's Journal, including past journals, visit: www.computerworld.com/q?q2000

■ This week's journal is written by a real security manager, "Mathias Thurman," whose name and employer have been disguised for obvious reasons. Contact him at mthurman@hushmail.com or go to the Security Manager's Journal forum.

Start-up's Apps Make Desktop Linux Easier

Ximian to promote adoption of operating system with Evolution application suite

BY MARK HALL

IN JULY, on Utah's Pioneer Day, Kerry Cox told his wife that he felt like one of the Mormoo settlers in 1847, blazing trails in new territory.

"Of course, I was talking about putting Linux on the desktop, where I am like a voice in the wilderness," he explains.

Cox is the systems administrator and network engineer at KSL Televisioo & Radio, a subsidiary of Bonneville International Corp. in Salt Lake City. His nearly 400 deadline-driven newsroom end users are demanding better desktop stability, and management is bemoaning Windows licensing costs, prompting IT to envision dramatic changes ahead, he says.

Linux is used on only 2% of all desktop PCs, compared with 92% for Windows. But Linux may get a boost on the desktop next month when Boston-based start-up Ximian Inc. releases Version 1.0 of Evolution, its open-source, Microsoft Outlook-like e-mail and calendaring software.

Ximian's founders hope that end users will flock to Linux on the desktop, given Version 1.4 of the company's Linux graphical user interface (GUI), which is based on the open-source GNU Network Object Model Environment (GNOME), along with its Red Carpet tool for automating Linux software management.

"We foresee in the near future that all our users will be on Linux with a Ximian desktop," says Cox, whose technical staff already runs GNOME.

Analyst Bill Claybrook at Boston-based Aberdeen Group Inc. says he thinks it will take a long time for nontechnical users to adopt Lioux, regardless of whether it has a GUI. "The ease of use just isn't comparable yet," he says.

But Nat Friedman, vice president of product development at Ximian, claims that technical staff who prefer Linux contend with "the two-machine problem" because they almost always need Windows productivity tools. With Evolution, Linux users will be able to use a calendar, view HTML messages and create an address book in a full GUI environment, just like with Microsoft Outlook, he says. And unlike Outlook administrators, Evolution administrators will have access to the source code.

Rory Hudson, retail systems manager at Zumiez Inc., a fashion company in Everett, Wash., with 70 stores in 11 states, says he's been pleased with the beta versions of Evolution.

"It's going to improve store communications," he says. Zumiez is in the midst of replacing its in-store Unix terminals with Linux desktops running Ximian's GUI and will add Evolution when that phase is completed. "Store managers are not necessarily computer-literate," be adds, which puts a premium on easy-to-use systems.

Miquel de Icaza, Ximian's chief technology officer and co-founder, says Linux desktops will be popular as point-of-sale terminals, as they are at Zumiez. But realistically, he says, Linux GUI-based applications are going to initially find homes inside IT, where developers will use them to write programs and systems administrators will depend on them to manage Linux servers.

That jibes with Jeff Davis' experience at New York-based energy giant Amerada Hess Corp. The senior systems programmer says technical staffers, particularly younger ones, appreciate Linux with Ximian's GNOME user interface.

Like KSL's Cox, Hess says Microsoft's licensing policies have prompted a discussion within IT about broadening Linux desktop use. But, says Davis, because of the dearth of Windows-compatible productivity applications, "it means we're not anywhere near making a change."

Ximian hopes that users will turn to Sun's StarOffice application suite to round out its offering, since many key independent software vendors don't offer Linux versions of their applications. Indeed, it's a lack of software that's holding up deployment outside IT at KSL.

"I see an incursion of Linux from the tech side through the ranks," says Cox. But for now, migrating the business desktop will have to wait.

XIMIAN CEO Nat Friedman (left) and co-founder Miguel de Icaza are striving to develop easy-to-use Linux desktop systems.

Ximian Inc.

401 Park Drive, 3 West
Boston, Mass. 02215
(617) 236-0442

Web: *www.ximian.com*

Niche: Ximian offers an open-source graphical environment and application suite and management tools for Linux desktops.

Company officers:
- David Patnck, CEO
- Miquel de Icaza, CTO and co-founder
- Nat Friedman, vice president of product development and co-founder

Milestones:
- October 1999: Company founded as Helix GNOME
- March 2000: Helix GNOME 1.0 released
- January 2001: Company name changed to Ximian
- April 2001: GNOME 1.4 released

Burn money: $15 million in second-round funding from Charles River Ventures and Battery Ventures

Employees: 55

Products: GNOME 1.4 GUI and Evolution 1.0 desktop productivity software, which ships in October, are downloadable for free. Red Carpet Express: $995 per user; Red Carpet Corporate Connect: $150 annually per user, plus a $2,500 setup charge.

Customers: Amerada Hess, KSL Television & Radio, Zumiez and others

Partners: TurboLinux Inc., Hewlett-Packard Co., IBM and Red Hat Inc.

Red flags for IT:
- GNOME doesn't have enough application support to replace Windows on the business desktop.
- Products add another operating system and set of applications to the IT support workload.

COMPUTERWORLD emerging companies

[the buzz] STATE OF THE MARKET

Open Questions

The Eazel Effect

Open-source advocates suffered a setback in May when Ximan competitor and GNOME developer Eazel Inc. went belly up. The Mountain View, Calif.-based company had burned through $11 million in venture capital funding and failed to raise more from investors.

Eazel targeted consumers, while Ximian seeks business users, so Eazel's departure may not affect Ximian's prospects, observers say.

The Anti-.Net

Ximan's ambitions go beyond its desktop technology. It's the first open-source company to jump on Microsoft Corp.'s .Net bandwagon, although not so much to support the initiative as to subvert it, Ximian claims. The company has launched the Mono Project, which will create open-source versions of .Net components such as the C# compiler, full class libraries and a common language runtime environment.

If the Mono Project succeeds, says Aberdeen Group analyst Bill Claybrook, Linux users will be able to run any .Net-ready application.

Claybrook argues that if Linux is going to get anywhere on the desktop, it must have access to Windows applications.

"Without Microsoft software, Linux on the desktop won't be a huge success," he says. Microsoft's .Net strategy may give Linux advocates the access they desperately need.

Open Confusion

Linux desktop users applaud its low cost of ownership and rocklike stability. However, the diversity of Linux releases creates administrative nightmares. So Ximian has included a tool called Red Carpet in its GNOME 1.4 release. With hundreds of Linux distributions, software management "is kind of a pain," says Ximian's vice president of product development and co-founder, Nat Friedman. Red Carpet manages the different Linux releases with various applications.

Claybrook says he expects end-user problems to persist for the foreseeable future because tools like Red Carpet are few and far between. And to date, none of them works with enterprise management tools, he says.

– Mark Hall

Web Administrator Sunnyvale, CA based semi-conductor mfg co. is seeking web administrator to manage its web site. Must have AA deg w/2 yrs exp in job offrd or web dsgn/hosting or prgmg. Mail resume to HR, Wave Systems Corp., 1159 Sonora Ct. Sunnyvale, CA 94086

eMind LLC, headquartered in Los Angeles, CA, a leading provider of e-Learning solutions is seeking experienced candidates. Positions in Point Richmond, CA and Marina Del Rey, CA for Programmers/Analysts, Applications Developers, Network Administrators. For details see our web site at www.emind.com. Resume to: N. Malhotra, eMind, LLC, 4077 Redwood Avenue, CA 90066.

Project Lead Software Development sought by an electronic commerce company based in Palo Alto, CA. Must have Masters degree in Comp. Sc. or Comp Enggr. With 2 yrs exp. in software development. Respond to HR Dept. Buildfolio.Com Inc., 1895 El Camino Real, Palo Alto, CA 94306.

System Support Analyst - We are seeking a systems support analyst to analyze and resolve computer hardware and software problems of the Electrical Engineering Department including 350 workstations, servers, network infrastructures and cluster administration. Master of science in electrical engineering or bachelors plus two years experience required. Offering prevailing salary. Mail resume to: PROV 3138 CalTech 1200 E. California Boulevard, Mail Code 4-11, Pasadena, CA 91125. CalTech is an AA/EOE. Women, minorities, veterans & disabled persons are encouraged to apply.

SAP Business Information Warehouse (BW) company seeking experienced SAP BW functional/technical consultants familiar with generic and custom extractors, data modeling, info sources and info cubes. Also seeking SEM and Supply Chain Management/APO experience. Please e-mail resume to Business Information Solutions at recruiting@bisamerica.com or fax to (858) 486-5619.

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To work in various unanticipated locations throughout the U.S. Duties: Under direct supervision design, develop, code, test and implement software applications. Analyze client requirements and design and develop software applications to meet client specifications and goals. System testing and installation. Use of IBM Mainframes, COBOL, CICS, IDEAL, DB2 and IMS. Bachelor's degree or equivalent in Computer Science, Electrical or Electronic Engineering, Mathematics or its equivalent in education and/or experience plus 2 years in the job offered or 2 years in a related occupation including Programmer or Systems Analyst. Will accept 2 years college education and 6 years of experience in lieu of required education and experience. 40 Hrs/wk, $52,000/yr. Must have proof of legal authority to work in the United States. Send your resume to: Iowa Workforce Center, 2740 S. 17th Street, Clinton, IA 52732-7040. Please refer to Job Order IA1101427. Employer paid advertisement.

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Senior Analyst

Designs and Develops Programs that analyze & verify the patient set up and Dose Distribution of Cancer treatments. Manages & Archives imaging system Databases & Networks 40 hrs/week. MS in Computer Eng courses completed in Image Processing, Naural/Fuzzy Systems, Network Systems, & Imaging Physics. Respond by resume to Fang-Fang Yin, Dept of Radiation Oncology, 2799 W. Grand Boulevard, Detroit, MI 48202

Consulting Group seeks Systems/Web Developer to analyze system outlines to develop programs for computer applications; analyze proposed computer applications to determine feasibility; code, test and debug programs, evaluate effectiveness and develop new systems. Must have an Associate Degree in Computer Programming or Computer Related Field; and experience with HTML, Javascript, COBOL, Visual Basic, PL/SQL, PHP exp. Min 3 yrs in-job or job-related exp. Resumes to H.R. Dept. Jireh Consulting Group, Inc., 900 North Bend Road, Cincinnati, OH 45224. EOE. No calls.

Multimedia Software Engineer wanted by software co. in Houston, TX. Must have M.S. in Software Engineering or Comp. Sc. plus 1 yr. exp. Respond by resume to: Mr. V. Tang, P/D, President, Tietronix Software, Inc., 1002 Gemini Ave., Ste. 126, Houston, TX 77058.

Systems Analyst wanted by Mfgr. of Specialty Steel Forgings. Requires B.S. in Comp. Sci. or related tech. field plus 2 yrs. Oracle exp. Reply to Eleanor Elliott, HR Dept., Wyman Gordon Forgings, P.O. Box 40456, Houston, TX 77240-0456.

Engineering Programmer (Houston, TX) Converts scientific and engineering formulations used in Titanium Nitride Vacuum Coating process to computer programs using dBase 2 yrs Exp. Contact Kathy of Duratech Coating, Inc., at 10920 Kinghurst Dr., Houston, TX 77099 (281)581-8858(T), (281)561-6368(F)

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recruiting.team@ey-us.com

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Programmer Analyst - Oracle Specialist - Multiple Openings

Structured systems analysis, design, development, testing, quality assurance, implementation, integration, maintenance and support of large volume on-line complex integrated client-server based business, financial, banking, manufacturing and other commercial application systems in a multi-hardware/multi-software environment using centralized or distributed database systems using Oracle Relational Database Management Systems (RDBMS), and related software. Design of large application systems and databases in a Co-operative Development Environment (CDE) and analysis, design and development of applications using CASE (Computer Aided Software Engineering) tools. Bachelor's Degree (or equivalent) in Computer Science-Math/Engineering/Science/Business-Commerce and 1 yr experience in job offered or as Software Engineer/Systems Analyst are required. Must have appropriate combination of skills as follows: 1 of A and 3 of B; or 2 of A and 2 of B. A) includes Oracle RDBMS, Oracle CASE tools (Designer, Dictionary, Generator), CDE 2, Oracle Financials; B) includes PRO*C, SQL*Forms, SQL*Reportwriter, SQL*Plus, SQL*Menu, PL/SQL. High mobility preferred. 40 hrs/week, 8 am - 5 pm. $66,671 - $78,000 per year. Qualified applicants should contact or send resume to: McKeesport/Allegheny County CareerLink, ATTN: JS Supervisor, 345 Fifth Avenue, McKeesport, PA 15132-2600. Refer to Job Order #WEB 193604

Programmer Analyst - Oracle Specialist - Multiple Openings

Structured systems analysis, design, development, testing, quality assurance, implementation, integration, maintenance and support of large volume on-line complex integrated client-server based business, financial, banking, manufacturing and other commercial application systems in a multi-hardware/multi-software environment using centralized or distributed database systems using Oracle Relational Database Management Systems (RDBMS), and related software. Design of large application systems and databases in a Co-operative Development Environment (CDE) and analysis, design and development of applications using CASE (Computer Aided Software Engineering) tools. Bachelor's Degree (or equivalent) in Computer Science-Math/Engineering/Science/Business-Commerce and 1 yr experience in job offered or as Software Engineer/Systems Analyst are required. Must have appropriate combination of skills as follows: 1 of A and 3 of B, or 2 of A and 2 of B. A) includes Oracle RDBMS, Oracle CASE tools (Designer, Dictionary, Generator), CDE 2, Oracle Financials; B) includes PRO*C, SQL*Forms, SQL*Reportwriter, SQL*Plus, SQL*Menu, PL/SQL. High mobility preferred. 40 hrs/week, 8 am - 5 pm. $66,671 - $78,000 per year. Qualified applicants should contact or send resume to: Manager, Washington County Team PA CareerLink, Millcraft Center, Suite 150LL, 90 West Chestnut Street, Washington PA 15301-4517. Refer to Job Order #WEB 193769

Software Engineer/ Sr Technical Specialist

Provide technical systems development and analytical expertise to the design, development and implementation of business intelligence systems; provide project documents and deliverables of high quality and on schedule; write programs/generate from and prepare design specification using the most cost effective techniques and system utilization; conform to user requirements and follow IS technical standards and development methodologies; provide technical leadership, guidance and coaching to other team members; provide comprehensive, high quality documentation; conduct system operations walk throughs and all necessary support to computer operations upon production turnover; support systems testing and provide end user testing support as required and provide post implementation maintenance support to existing applications; both in technical and analytical terms. Requires a Master's degree in Computer Science or the related/equivalent and 2 years of experience in systems analysis and database design, including developing business intelligence and reporting systems. In the alternative of a Master's, the position requires a Bachelor's degree in Computer Science or the related/equivalent and 5 years of progressive experience in systems analysis and database design, including developing business intelligence and reporting systems. The position also requires experience developing business intelligence systems for enterprise wide systems and client server applications, including the web deployments. Also required is experience coding with business intelligence development tools such as Cognos, Impromptu, Impromptu Web Reports and Powerplay; experience conducting analysis and design of outputs; and experience with relational databases and administering in UNIX and Oracle environments. 8:00AM - 5:00PM, 40 hours/week. $72,500 yr. If interested please submit resumes to Job Order #22001-324, PO Box 989, Concord, NH 03302-0989. EOE

Software Engineer design & develop software financial solutions & modifications (SAP R/3 configuration, installation, implementation, integration & cycle system testing) using SAP to perform systems analysis of end user's financial & related business requirements. Must have: Bach in Business or Finance, 5 yrs exp in SAP financial software development. F/T, M-F. Resume to: McCarron, Riesdorf & Ingalls, 300 West Main St, Northboro MA 01532

System Specialists and Sr. Systems Specialists - Boston & Waltham, MA

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PROGRAMMER/ANALYST to analyze, design, develop, test, implement and debug computer software applications using Visual Basic, COBOL, COBOL II, Parvelet, ISPF/TSO, DL/I, IMS, Xpediter, MFP, Network IT, ArserveIT, and Unicenter TNG under Windows operating system. Require: B.S. degree in Computer Science, an Engineering discipline, or a closely related field with two years of experience in the job offered. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Send resume to: John Watson, IMA Plus, 9428 Baymeadows Rd., Suite 500, Jacksonville, FL 32256 Attn: Job CD

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Qualified applicants must possess a master's or foreign equivalent in Computer Science, Physics or any Math; Electronics, Engineering or Science field and three years of work experience as a Software Engineer. In the alternative, a bachelor's degree and five years of progressive experience would be sufficient. Must also possess experience with JAVA, statistics and mathematical modeling.

Resume and/or cover letter must reflect each requirement above and specify reference code SSE or it will be rejected.

Forward resume to: Jennifer Barretta, Human Resources Manager, Genaissance Pharmaceuticals, Inc., 8 Science Park, New Haven, CT 06511. EOE M/F/D/V

PROGRAMMER/ANALYST to analyze, design, develop, test, implement and maintain Internet/Intranet application software using Java, Java Servlets, Java Swing, JDK, JDBC, Active Server Pages, SQL Server and PL/SQL under Windows NT operating system. Require: B.S. degree in Computer Science, an Engineering discipline, or a closely related field with two years of experience in the job offered. Extensive travel on assignments to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to: Atosh Bhardwaj, President, Information Systems Group Inc., 5555 Triangle Parkway, Suite 310, Norcross, GA 30092. Attn: Job SS.

SOFTWARE ENGINEER to develop, develop, test, implement, and maintain application software for high volume financial services in a client/server environment using C, C++, Perl, Oracle, DB2, SQL, PL/SQL, Pro*C, X-Windows Motif, and UNIX Shell programming on UNIX platform; Perform data modeling using KFE and Erwin. Require: B.S. degree in Computer Science, an Engineering discipline, or a closely related field with five years of progressively responsible experience in the job offered or as a Programmer/Analyst. Competitive salary offered. Send resume to: Debra L. Crow, Citibank Universal Card Services, 8787 Baypine Road, Jacksonville, FL 32256. Attn: Job GC.

PROGRAMMER ANALYST. Support implementation of comp. sys. using Relational Database concepts. Spec duties incl: desgng, & dvlpg various procedures, triggers & screens; dvlpg front-end appls; dvlpg, implementing & modeling data bases as well as generating rpts. Bachelor's deg. in Comp. Sci., Engrg., Bus., Physics or Math plus 2 yrs. of exp. in offered position or as Software Engr., Sys. Analyst or Database Admin. rqd. Must have working knowl. of PowerBuilder & SQL languages & Oracle database. High mobility preferred. 40 hrs/wk, 8 am - 5 pm, OT as rqd. $66,671/yr. Qualified applicants, report/submit resume to: McKeesport/Allegheny Cnty. CareerLink, ATTN: JS Supervisor, 345 Fifth Ave., McKeesport, PA 15132-2600. Refer to Job Order No. WEB196071.

SOFTWARE ENGINEER to design, develop, implement, and maintain application software for various financial and business management applications using COBOL, CICS, DB2, XPEDITER, JCL, TSO, ISPF, SDSF, VSAM, MAGNUM, GTB, MQ Series, IMG, TABLES AS, and ENDEVOR under MVS/ESA, UNIX, and Windows NT operating systems. Generate complex reports using Tables, MM, COBOL, Assembler, RMS and Easystreive. Design and develop interface programs using Oracle, Visual Basic, COBOL and PASCAL under DOS and Windows operating systems. Require: B.S. degree in Computer Science, an Engineering discipline, or a closely related field with five years of progressively responsible experience in the job offered or as a Programmer/Analyst. Competitive salary offered. Send resume to: Prasad R. Pasury, Navtech LLC, 2028 Powers Ferry Rd. Suite 170 A, Atlanta, GA 30339. Attn: Job SP

SYSTEMS ANALYST to analyze, design, develop, implement and maintain application software systems in a client/server environment using Lotus Notes, Lotus Domino, Lotus Script, Java Script and Oracle under UNIX, Linux and Windows NT/98/2000 operating systems. Requires B.S. degree in Computer Science, an Engineering discipline, or a closely related field with two years of experience in the job offered. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Send resume to: Jason Crawforth, President, Trexlop Technologies Inc., 1730 Woodbridge Lane, Boise, ID 83706. Attn: Job SM

Programmer Analyst (Mod/Web) - Multiple Openings

Structured systems analysis, design, development, testing, quality assurance, implementation, integration, maintenance and support of integrated client-server based systems for business, financial, banking, manufacturing and other commercial business application systems in a multi-hardware/multi-software environment using centralized or distributed relational database management systems, 4GLs (Fourth Generation Languages) and other GUI (Graphical User Interface) front-end tools. Analyze, design and development of client-server applications using object-oriented methodology. Bachelor's Degree (or equivalent) in Computer Science-Math/Engineering/Science/Business-Commerce and 1 yr experience in job offered or as Software Engineer/Systems Analyst are required. Must have appropriate combination of skills as follows: 1 of A and 2 of B; or 2 of A and 1 of B; or 3 of A. A includes Oracle, Sybase, Informix, SQL Server, Progress, Ingres, Access and Proxy Server and B includes PowerBuilder, Visual Basic, MS-Windows, Visual C++, JAM, APT-SQL, SQL*FORMS, ESQL/C, GUPTA SQL, Progress 4GL, Informix 4GL, Ingres 4GL, C, Java, Lotus Notes, HTML, CGI, IIS, ASP, Front Page, Perl and Java Development Kit (JDK). High mobility preferred. 40 hrs/week, 8 am - 5 pm. $66,671 - $78,000 per year. Qualified applicants should contact or send resume to: JS Supervisor, Greene County Team PA CareerLink, 4 West High Street, Waynesburg, PA 15370-1324. Refer to Job Order # WEB 193786

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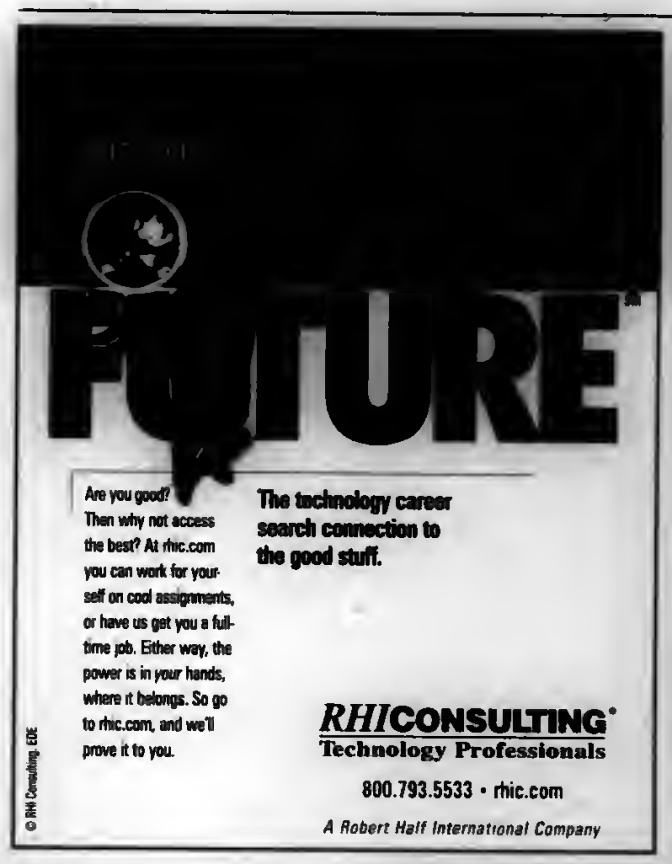
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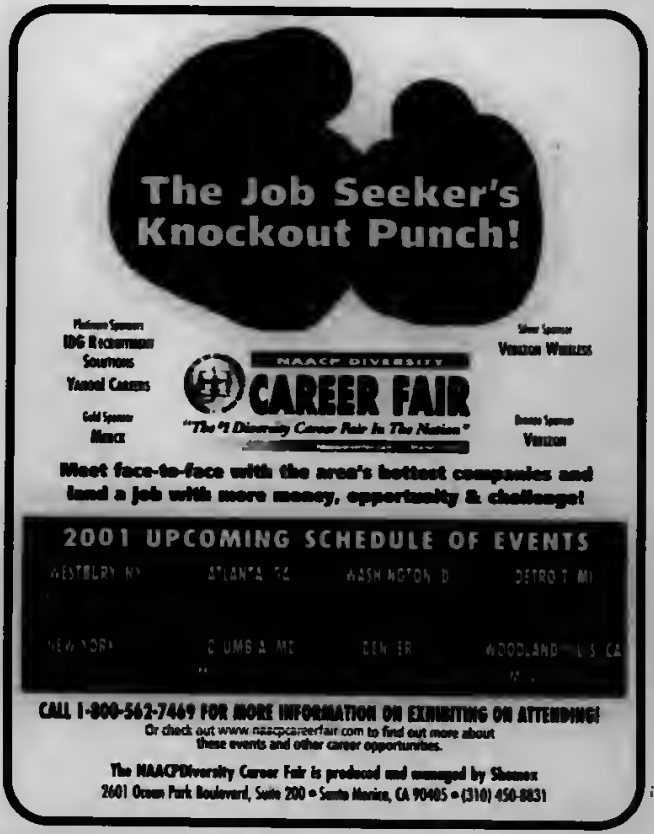
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Microsoft

the ability of PC makers to customize systems and offer competing software products.

Ashok Bakhshi, IT director at Schindler Elevator Corp. in Morristown, N.J., said he's relieved by the decision because he was concerned about a breakup's potential effect on product integration. An intact Microsoft means he doesn't "have to worry about multiple vendors [and] multiple interfaces," he said.

The benefits that could have been gained by splitting Microsoft into two companies were questionable, said Jon C. Dell'Antonia, information systems director at clothing maker OshKosh B'Gosh Inc. in Osh Kosh, Wis. "It might introduce more competition, but it might not," he said. "Instead of one giant, you [could] have two."

But others had been hoping that the antitrust case would help reduce Microsoft's sway over the software market. "Unless there is something new that happens, it's going to be business as usual," said Donald Stroud, information systems director at Plain Dealer Publishing Co. in Cleveland. "Microsoft will continue to dominate the industry. I wish somehow, some way, there was a reasonably strong competitor."

In making last week's move, the Bush administration opened itself up to attack from Microsoft critics who have said that anything less than a breakup will be ineffective in restraining the company.

"It sounds to me like [government officials] are all but giving up," said David Smith, an analyst at Gartner Inc. in Stamford, Conn. "There are going to be some conduct remedies, but it remains to be seen just how much more than a slap on the wrist they are."

But a Justice Department official defended the government's actioo and argued that the agency will now be able to move more swiftly to seek changes in Microsoft's business practices.

"Is this something that we view as going light on Microsoft? Absolutely not," said the official, speaking on the condition that he not be identified. "We believe that we can get prompt and effective relief that addresses the core monopoly maintenance claims ... and we're going to get [it] soon."

The decision not to try to separate Microsoft into an operating systems company and a separate business for its other products also had the backing of the 18 states still involved in the antitrust case, according to the Justice Department.

The department also said it wouldn't continue to pursue a claim that Microsoft had illegally tied its Internet Explorer Web browser to Windows.

U.S. District Court Judge Thomas Penfield Jackson, who ran the trial phase of the case, ordered a breakup of Microsoft last year. But Stephen Houck, the former lead trial counsel for the 18 states, said the Justice Department faces an uphill battle to persuade a new judge to do the same thing. Houck cited the skepticism about a breakup that the U.S. Court of Appeals expressed in June while affirming the ruling that Microsoft illegally maintained its desktop operating system monopoly.

"I think the government opted to pursue a strategy [it] thought would be effective and fairly quick," said Houck, who's now an attorney at Reboul, MacMurray, Hewitt, Maynard & Kristol in New York. A conduct remedy could actually be more onerous to Microsoft by subjecting the company "to continual scrutiny," he added.

The case was remanded to the U.S. District Court in Washington by the appeals court late last month. The new judge assigned to the case has scheduled a status conference for Sept. 21. The Justice Department last week said it plans to seek an expedited process that will include a review of recent developments in the software industry.

Microsoft officials were muted in their public response to last week's developments and simply reaffirmed their desire to resolve the case.

The Justice Department said it doesn't plan to try to block the release of Microsoft's new Windows XP desktop operating system, which is due for release Oct. 25. But the official who spoke at the agency's briefing made it clear that "a remedy will ... apply to any product that Microsoft sells."

Quick Link To access our special focus page covering Microsoft antitrust issues, visit our site.
www.computerworld.com/cfm1100

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PeopleSoft Suit

support. The insurer wants PeopleSoft to pay the unspecified cost of the internal applicatioo development and is seeking punitive damages plus interest and legal fees.

PeopleSoft declined to comment on the specifics of the suit, saying it hadn't seen the complaint yet. "But PeopleSoft provided CIGNA with software that it licensed and performed services that CIGNA contracted for," a PeopleSoft spokesman said. "It is unfortunate that for internal reasons, CIGNA was unable successfully to adopt our software, but this was not related to the quality of the software or services provided by PeopleSoft."

It's rare that the relationship between a vendor sucb as PeopleSoft, which typically is seeo as a user-friendly company, and a large customer like CIGNA would deteriorate to this degree, said Joshua Greenbaum, an analyst at Enterprise Applications Consulting in Daly City, Calif.

"The big question is, How did it get to be so bad?" Greenbaum said. "In general, these suits are about the implementation and not the software [itself]." For the most part, he added, PeopleSoft has a relatively strong track record for customer satisfaction.

However, Connecticut General's complaint alleges that it isn't the only company to be mistreated by PeopleSoft. The 200-page suit includes supplementary legal documents from lawsuits filed in recent years by several other PeopleSoft customers, including Home Products International Inc. in Chicago, McNaughton-McKay Electric Co. in Madison Heights, Mich., and the now-defunct retailer Bradlees Inc.

PeopleSoft's spokesman said he needs to investigate those cases before commenting about them.

An attorney for Connecticut General declined to comment in more detail about the insurance company's suit and said officials at the company wouldn't discuss the charges or the failed project.

According to the legal filing, Connecticut General decided four years ago that its accounts receivable billing system, which handles $5 billion in transactions annually, was outdated and needed to be replaced. In mid-1999, the suit states, the company signed a $5 million-plus deal with PeopleSoft covering software licenses, technical support and implementation and customization services.

The project started that October and was supposed to be based on PeopleSoft 7.5 or a subsequent release, according to the suit. But by the following month, Connecticut General personnel "began to suspect that ... the PeopleSoft team [was] having difficulty performing the customization and implementation services."

PeopleSoft replaced the workers assigned to the project and sent in a "crisis management team," the suit states. But early last year, Connecticut General charged, PeopleSoft said the original project bid was flawed and raised the price to $11.7 million, with the possibility of another 20% increase on top of that amount.

Connecticut General further claimed that PeopleSoft "failed to properly customize and implement" the promised software, leaving it "inoperable ... and entirely useless."

See You in Court

Connecticut General has filed a 13-count civil suit against PeopleSoft over a botched implementation of a new finance system.

What the suit claims: Connecticut General charges that PeopleSoft breached an agreement for support and consulting services and falsely claimed that it could customize and install an accounts receivable billing system for the insurer.

What's at stake: After investing more than $5 million, Connecticut General said, it didn't get the promised software and had to develop its own application. It's suing PeopleSoft to recover what it spent plus damages and legal fees.

PeopleSoft's response: The company said it fulfilled the requirements of the contract and blames the failure of the installation on "internal reasons" at the insurer.

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Winners and Losers

SO WHO WON? WHO LOST? Hewlett-Packard's purchase of Compaq is a gamble — and we won't see the ultimate results for years. A lot can change in the time it will take for HP and Compaq to gain regulatory approval, complete their merger and "rationalize" product lines and sales strategies. Technology, the economy and the marketplace could shift dramatically along the way.

But why should that stop anyone from declaring winners and losers after the first few days?

Winner: IBM. Investors apparently think the deal stinks for HP and Compaq. By the end of trading on Tuesday, the day after the announcement, HP's and Compaq's stock prices had dived and IBM's was up. Why? IBM's profits have been climbing. HP's profits barely exist, Compaq's have disappeared, and the combined company's revenues are expected to drop for the next two years. Someday, the new HP may be a threat to IBM — but not any time soon.

Loser: The HP way. David Packard died in 1996. Bill Hewlett was buried last January. And Tuesday, Hewlett's people-centric "management by walking around" corporate culture was put to rest with HP's announcement that it will pink-slip 15,000 of its own and Compaq's employees so it can afford the merger.

Loser: IT purchasing choice. HP will rationalize the merged product lines — that means getting rid of products. In the meantime, it'll be a year before corporate IT people know exactly which products will be chopped and what their options will be.

Winner: IT budgets, at least in the short term. We're already in a PC price war, and Dell will step up the price pressure to grab customers who had Compaq brand loyalty. And once the HP/Compaq merger is complete, the new HP will be going after IBM's successful services business, giving leverage to IT shops that are willing to shop around in that arena.

Loser: Microsoft, slightly. For Redmond, it's one less PC-making customer. It's also a little less political leverage. HP, Compaq and Digital have been three of Microsoft's strongest allies over the past decade in its battles with regulators and other opponents. Now, they comprise, er, *one* of Microsoft's strongest allies.

Winner: Dell, probably. If Dell can grab former Compaq customers, it could win big — and they'll be up for grabs as HP cuts product lines and shifts customers from Compaq to the HP brand name. Some analysts think Dell will eventually need to buy an enterprise services company of its own to stay in the game. But wasn't that Compaq's plan?

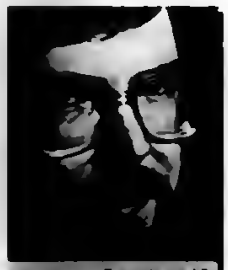
Winner: Gateway, maybe. What Dell doesn't get, Gateway probably will. (That's if Sony, Toshiba and other vendors don't get there first.)

Loser *and* winner: Sun Microsystems. There's no love to be lost between staid HP and its brash cross-town rival. The new HP will continue to undercut Sun's control of Java, and now Sun will be fighting to get Java on HP's PCs. But Sun doesn't have to worry about PC price wars — it doesn't make PCs. And nothing in the old HP or Compaq was able to stand in the way of Sun running rampant in the server market.

Winner *and* loser: Linux. HP and Compaq are both strong Linux backers, and that's not likely to change. But for the next two years, HP and Compaq will be too busy trying to make the merger work to spend much effort making Linux more successful.

Loser: HP CEO Carly Fiorina – at least in the short term. Tuesday morning, HP's stock price was at a 52-week low. As of Tuesday night, it had dropped almost 20% and was at a *five-year* low. That's gotta hurt. And Fiorina faces the unenviable task of absorbing Compaq and the undigested remains of Digital, chopping another 10% of the combined company's workers and presiding over what she admits will be revenue declines for the next two years.

Fiorina may win in the end — but it's going to feel like she's lost for a long time to come.



Frank Hayes, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

SHARK TANK

THREE WEEKS after he's hired, IT pilot fish shows up for his first day on the new job. But his new cube is PC-less. Fish's new boss explains: Orders for new PCs aren't placed until after the employee starts work. "That's so we don't waste money on a new PC that's not needed," boss says. "But I'm supposed to develop PC software," says fish. "What am I supposed to do in the meantime?" Boss shrugs: "Look busy."

MAINTENANCE TECH has just worked on the computer room's fire-suppression system, and he's giving this pilot fish and other IT staffers a quick session on emergency procedures. "I have the system in test mode, so we don't have to worry," he says. "But in the event of an emergency, you would press this red button to shut off all electricity and engage the system." Tech pushes the button – plunging them all into darkness and shutting down every machine in the computer room. Out of the darkness comes a timid voice: "How many people are mad at me right now?" Fish: "About 200."

BOSS CAN'T GET a Web page to print without it running off the right side of the paper. IT manager pilot fish starts explaining how to change his PC's settings, but he cuts her off. "That seems like a lot of work," boss says impatiently. "Couldn't I just move my printer to the right?"

AS A SEVERE thunderstorm approaches, facilities manager gives staff a heads-up to close their windows. Pilot fish and most of the IT staff race out to the parking lot to roll up their car windows. On the way back to his desk, fish passes a new hire who has just shut down all his Windows applications – and who asks fish, "Dude, when can we log back on?"

Talk to me, dude: **sharky@computerworld.com**. You score a sharp Shark shirt if your true tale of IT life sees print – or if it shows up in the daily feed at *computerworld.com/sharky*

The 5th Wave

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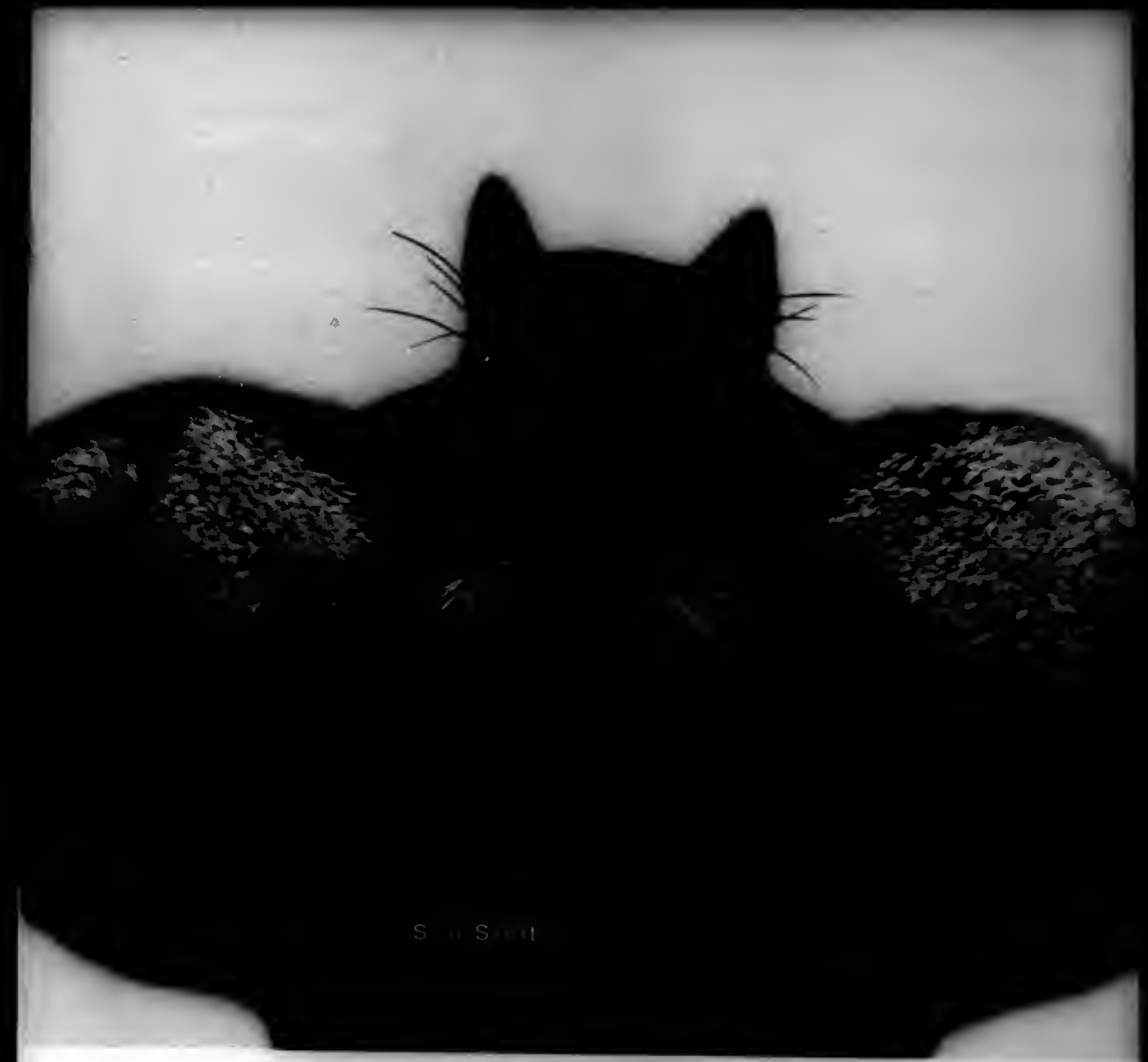
"The entire system is down. The computer people blame the modem people who blame the phone people who blame it on our moon being in the fifth house with Venus ascending."



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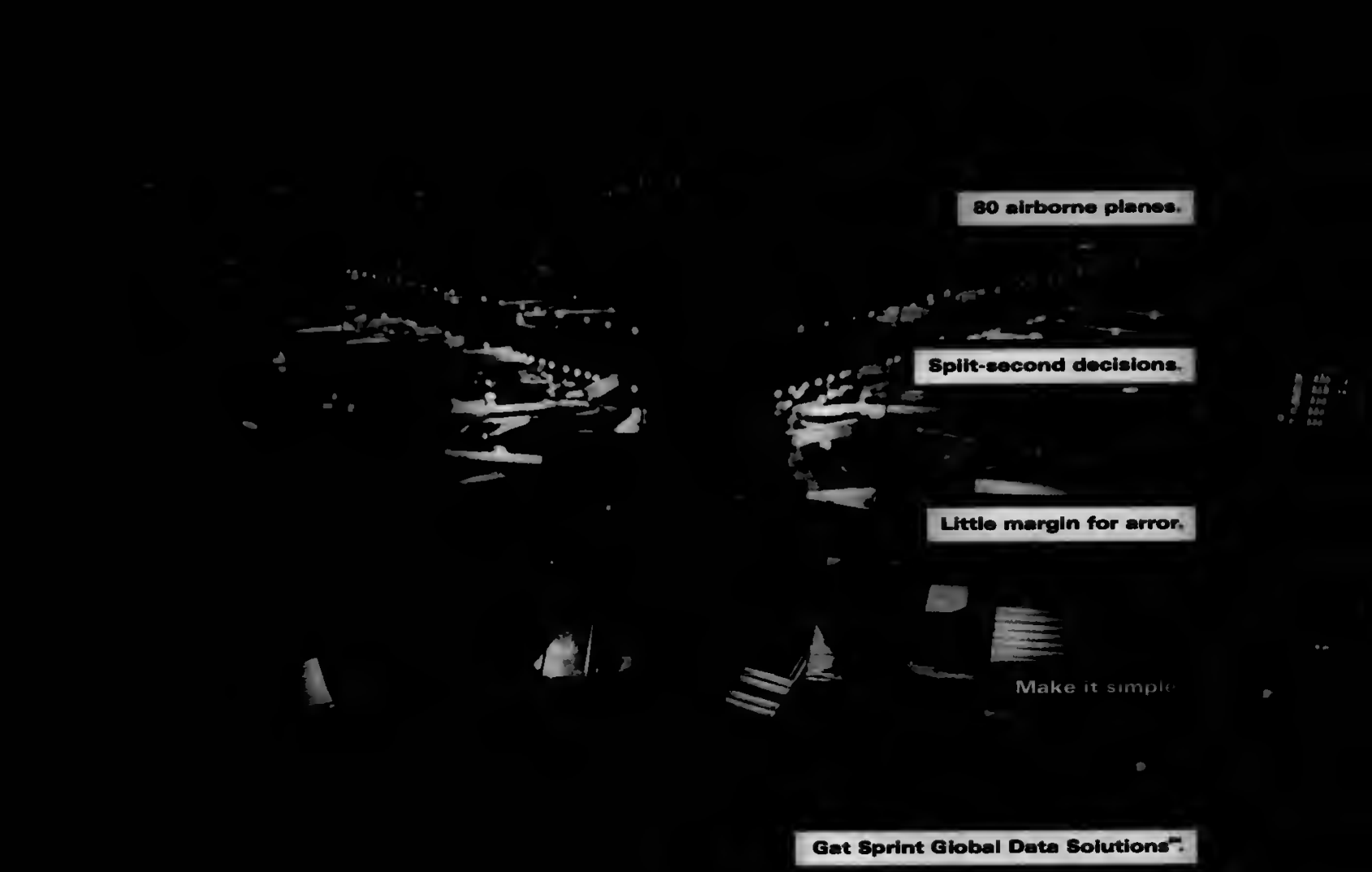

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